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# POSITRON EMISSION TOMOGRAPHY UTILIZATION DEVELOPMENT IN HONG KONG

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POSITRON EMISSION TOMOGRAPHY UTILIZATION DEVELOPMENT  
IN HONG KONG

by

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A Thesis

Submitted in Partial Fulfillment of the Requirements for the  
Master of Science in Education Degree

Department of Workforce Education and Development  
in the Graduate School  
Southern Illinois University Carbondale  
May 2012

THESIS APPROVAL

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A Thesis Submitted in Partial  
Fulfillment of the Requirements  
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Master of Science  
in the field of Workforce Education and Development

Approved by:

Dr. Barbara Hagler, Chair

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## AN ABSTRACT OF THE THESIS OF

Steve Sitt, for the Master of Science degree in Workforce Education and Development, presented on January 25 2012, at Southern Illinois University Carbondale.

TITLE: POSITRON EMISSION TOMOGRAPHY UTILIZATION DEVELOPMENT IN HONG KONG

MAJOR PROFESSOR: Dr. Barbara Hagler

The introduction of clinical Positron Emission Tomography (PET) in oncology in the 1990s has substantially changed the management of patients with cancer and become one of the diagnostic modalities with the fastest growth worldwide (Buck et al., 2010). The major hurdle delaying the proliferation of PET was partly due to its high initial investment and insufficient third-party reimbursement (Keppler & Conti, 2001). Hong Kong, a region with about half the economic strength of Germany, was able to sustain a higher ratio of PET-CT scanners than that of Germany. Through the study of the PET utilization in Hong Kong, this research is to (i) explore the factors contributing to this phenomenon; and (ii) find out if those factors are applicable to other developing countries.

The key factors found contributed to a higher ratio of PET-CT scanners in Hong Kong were: 1) medical expertise in a regionally profound disease; 2) the direct payment culture which enables an economically efficient and a cost-effective operation; 3) the influx of patients from neighboring countries; and 4) the reputation of its medical services. Applying these factors, citizens in developing countries were able to have access to the latest and expensive medical technology.



## DEDICATION

I would like to dedicate this thesis to my wife, Kathy, who always encourages my pursuit in the academic field, and my two lovely children, Gordon and Rachel, for their understanding and support during the study of my master's degree.

## ACKNOWLEDGMENTS

I would like to formally express my sincere appreciation to Dr. Barbara Hagler for taking up the position of my committee chairmanship and providing guidance, and I am also grateful to Dr. Beth Freeburg who was willing to join my committee and encouraged me to spend more time to refine my study, in the middle of this thesis project due to the retirement of my former committee chairman Dr. Alvin Putnam. Thank you, Dr. Thomas Hovatter, for your constructive ideas and your gracious service on my committee.

I also wish to acknowledge the support of my former colleagues in Hong Kong, Dr. Jacky Cheung and Ms. Maria Yeung, who were willing to provide and verify information during the course of this study.

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## CHAPTER 1

### INTRODUCTION

Cancer is the second leading cause of death in the United States (U.S.), just behind heart disease, according to the latest data provided by the Centers for Disease Control and Prevention (CDC, 2009). The risk, in this country, of being diagnosed with cancer is approximately one in two for men, and one in three for women; the risk of dying from cancer is approximately one in four for men, and one in five for women (American Cancer Society, 2010a). Another publication furnished by the American Cancer Society in 2011, *Global Cancer Facts & Figures 2nd Edition*, illustrated the global picture of cancer statistics in 2008 and the near future trend:

Worldwide, one in eight deaths is due to cancer; cancer causes more deaths than AIDS, tuberculosis, and malaria combined. When countries are grouped according to economic development, cancer is the leading cause of death in developed countries and the second leading cause of death in developing countries (following heart diseases). According to recent World Health Organization (WHO) projections, cancer will have replaced ischemic heart disease as the overall leading cause of death worldwide in 2010. (p. 1)

Those statistical results shown above from both the U.S. and the world revealed that cancer has become a prominent disease in the public health of human history. Every year, it profoundly affects not only tens of millions of people who are diagnosed with cancer, but also their families and friends.

Since the signing of the National Cancer Act in 1971 (OGCR), the United States has devoted a tremendous amount of resources to cancer research and the investment

is making a difference now. The U.S. cancer death rate began to drop in 1992; the combined incidence rate of all new cancers has been falling since 1999; and cancer patients live longer and enjoy a better quality of life than those of the previous generation. However, the incidence rates of skin cancer, kidney cancer, thyroid cancer, and liver cancer are rising. As this nation's population grows and ages, more people are expected to get cancer during their lifetime (National Cancer Institute, 2010).

In order to treat cancer effectively, early detection is the key. The earlier a cancer is detected, the better the chances that treatment will work and the better the survival rate (American Cancer Society, 2010b; National Cancer Institute, 2011b). A system has been developed to describe the status of a person's cancer condition. It is called cancer staging.

Staging describes the severity of a person's cancer based on the extent of the original (primary) tumor and whether or not cancer has spread in the body.

Staging is important for several reasons:

- Staging helps the doctor plan the appropriate treatment.
- The stage can be used to estimate the person's prognosis.
- Knowing the stage is important in identifying clinical trials that may be suitable for a particular patient.
- Staging helps health care providers and researchers exchange information about patients; it also gives them a common terminology for evaluating the results of clinical trials and comparing the results of different trials. (National Cancer Institute, 2011a, Cancer Staging, para. 1)

It is obvious that the staging process is very important because treatment and outlook for recovery depends on the stage of a cancer. For early cancer, surgery may be the best option. For more advanced cancer, however, surgery may not be useful. Other treatment regimens such as chemotherapy or radiation therapy may be more appropriate (American Cancer Society, 2011b).

Due to its capability of earlier and more precise diagnosis, molecular imaging has become a popular term of medical diagnosis in recent years (Peterson & Manning, 2009). Positron Emission Tomography (PET), the most common molecular imaging modality, is very sensitive in the detection of biological abnormalities in neurological disorders with no CT or MRI anatomic changes, or even before symptoms (Phelps, 2000).

Since the Center for Medicare and Medicaid of the United States started reimbursement for the clinical PET utilization in oncology in the 1990s, and especially after the invention of PET-CT in 2000, PET has substantially changed the management of patients with cancer and become one of the diagnostic modalities with the fastest growth worldwide (Buck et al., 2010).

Representing one of the largest growth medical modalities in the world, approximately 2,000 PET-CT scanners were installed in the United States, 70 were installed in Germany (Buck et al., 2010), and 12 were installed in Hong Kong (J. Cheung., personal communication, October 27, 2010).



Table 1

*Demographic, Economic, and PET-CT Data in the United States, Germany, and Hong Kong (2009)*

Nation	Population (million)	Number of PET-CT	Ratio (per million)	GDP per Capita (US\$)
United States	307	2,000	6.5	47,240
Germany	82	70	1.2	42,560
Hong Kong	7	12	1.7	23,900

*Note.* Adapted from Buck et al. (2010), Census & Statistics Department of Hong Kong SAR (2010a), and World Bank (2010).

### Statement of the Problem

As shown in Table 1, Hong Kong supported a higher PET-CT scanner per population ratio (1.7 vs.1.2) than that of Germany with only 56% of its gross domestic product (GDP) per capita. In fact, Germany is a member of the G7 nations which are considered the first tier of economic strength countries in the world. How can Hong Kong, a region with about half the economic strength of Germany, sustain a higher ratio of PET-CT scanners than Germany? According to Keppler and Conti (2001), the major hurdle in utilizing PET is the financial burden associated with the expensive equipment and running cost. The average cost of setting up a PET center with the radiopharmaceutical production capacity ranged from US\$5 million (low-cost scanner) to over US\$6.2 million (high-end scanner) in the U.S. The running cost ranged from US\$1.6 million to over US\$2.6 million per year. If this advanced PET technology can

be utilized in a way that countries with less economic strength are able to afford, it will have a tremendous health benefit to their cancer patients. Therefore, the purpose of this research study is to (i) explore the factors contributing to the PET utilization development in Hong Kong; and (ii) find out if those factors are applicable to other developing countries.

### **Research Questions**

This study looked at the history of PET utilization development as well as investigated the medical and socioeconomic environment in Hong Kong. The following questions served as structural guiding steps for the direction of this research.

Question 1. What is the clinical advantage of PET and PET-CT in the detection and monitoring of cancer patients compared to conventional diagnostic imaging modalities?

Question 2. How has the medical environment in Hong Kong affected PET utilization development?

Question 3. How has the socioeconomic environment in Hong Kong affected PET utilization development?

### **Significance of the Problem**

Due to the adoption of western lifestyles in developing countries, such as smoking, high fat and high cholesterol diet, lack of physical exercise, being overweight, use of birth control pills, and use of alcohol, cancers related to these risk factors, such as lung, breast, and colorectal cancers will continue to rise (American Cancer Society,

2011a). In developing countries, public funding available for the healthcare sector is not as abundant as funding in economically developed countries (World Health Organization, 2011). If the experience of PET utilization in Hong Kong can provide significant insights for a sustainable model of utilizing expansive advanced medical technology with less financial burden on the society, it will significantly benefit the vast number of people in those economically developing countries.

### **Limitations and Delimitations**

As the application of PET technology in developing countries only occurred in the last 10 years, limited prior research is available. This research looked into the financial aspect of the currently functioning medical facilities, both in the public and private sectors of Hong Kong. The willingness of those medical facilities to provide business information was a limitation. Therefore, information came from information-rich persons who have witnessed and also participated in the entire development cycle of PET utilization in Hong Kong for the last 10 years. The point of view of these finite experts contributed to the limited scope of this study. Also, manpower, financial, and time resources were limitations for this study as well.

Many of the examples and literature presented in the following sections focus on cancer and molecular imaging, primarily because that is the area in which the author is profoundly involved.

## Definition of Terms

*Clinical advantage of PET:* The clinical advantage of PET expresses in terms of its higher diagnostic sensitivity and specificity compared with conventional diagnostic imaging modalities, which include the diagnosis, staging, monitoring treatment, and detecting recurrence of a variety of tumors (Alavi & Reivich, 2002).

*Computed Tomography (CT):* Computed Tomography is a diagnostic imaging procedure that uses X-rays to produce 2-dimensional and 3-dimensional cross-sectional images or "slices" of areas of the body. Characteristics of the internal structure of an object such as dimensions, shape, internal defects, and density can be found from CT images (Computed tomography, 2011).

*Conventional diagnostic imaging:* Conventional diagnostic imaging is a general term referring to the imaging methods of computed tomography (CT), magnetic resonance imaging (MRI), sonography (US), and Radiography (X-ray) (Adams, Baum, Stuckensen, Bitter, & Hör, 1998).

*Developing countries:* The economy of countries are divided according to 2010 gross national income (GNI) per capita using the World Bank Atlas method: low income, \$1,005 or less; lower middle income, \$1,006 - \$3,975; upper middle income, \$3,976 - \$12,275; and high income, \$12,276 or more. The World Bank classifies all low- and middle-income countries as developing economies. However, the use of this term is convenient. The levels of development may vary widely within so-called developing countries (World Bank, 2012).

*Diagnostic sensitivity:* The conditional probability that a person having a disease will be correctly identified by a clinical test, i.e., the number of true positive results

divided by the total number with the disease (which is the sum of the numbers of true positive plus false negative results) (Mosby's Medical Dictionary, 2009a).

*Diagnostic specificity:* The conditional probability that a person not having a disease will be correctly identified by a clinical test, i.e., the number of true negative results divided by the total number of those without the disease (which is the sum of the numbers of true negative plus false positive results) (Mosby's Medical Dictionary, 2009b).

*Magnetic Resonance Imaging (MRI):* Magnetic Resonance Imaging is an advanced imaging method using a magnetic field, radio waves and a computer system to produce 3-D cross-sectional images of organs and internal structures in the body. Because the signal detected by an MRI machine varies depending on the water content and local magnetic properties of a particular area of the body, different tissues or substances can be distinguished from one another in the study image. For example, an MRI exam of a joint can provide detailed images of ligaments and cartilage, which are not visible using other study types. In some cases, a magnetically active material (called a contrast agent) is used to show internal structures or abnormalities more clearly (Magnetic Resonance Imaging, 2011).

*Metastasis:* By moving through the bloodstream or lymphatic system, cancer cells can spread from the primary site to lymph nodes or to other organs, where they may form new tumors. The spread of cancer is called metastasis (National Cancer Institute, 2011a).

*Ultrasound (sonography):* Ultrasound imaging uses high-frequency sound waves to produce pictures of the inside of the body. Because ultrasound images are captured

in real-time, they can show movement of the body's internal organs as well as blood flowing through blood vessels. Ultrasound exams do not use ionizing radiation as used in x-rays (Medical Imaging, 2011).

*X-ray (Radiography):* Radiography can be thought of as “X-ray photography”. It is the visualization of the internal parts of the body (object) by passing an X-ray beam through some section of a patient’s body to form a static image. The images that are formed are recorded either on film or some form of digital media (Medical X-ray, 2011).

## CHAPTER 2

### REVIEW OF LITERATURE

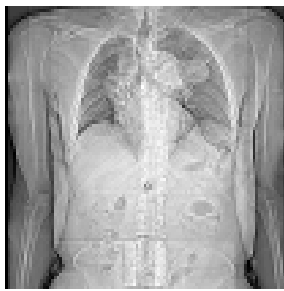
#### Molecular Imaging

The Society of Nuclear Medicine has adopted an official definition for molecular imaging: “Molecular imaging is the visualization, characterization, and measurement of biological processes at the molecular or cellular levels in humans and other living systems” (Mankoff, 2007, p. 18N).

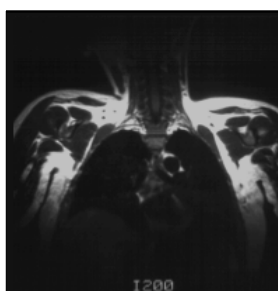
Conventional diagnostic imaging modalities, such as Computed Tomography (CT), Magnetic Resonance Imaging (MRI), X-ray, and ultrasound, show the pathologies through the visualization of the presence, location, and extent. PET as the most common molecular imaging modality, in the contrary, can detect pathological changes at the molecular or cellular level before anatomical changes of the tissues (Peterson et al., 2009).



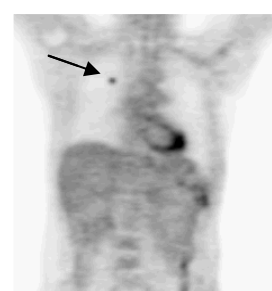
**X-ray**



**CT**



**MRI**



**PET**

*Figure 1. Anatomy vs Function: X-ray, CT, and MRI are anatomical imaging. PET is functional (physiological) imaging.*

As shown in Figure 1, conventional diagnostic imaging (X-ray, CT, MRI, etc.) looks through the anatomy (structure) of the body to examine if there is any pathological abnormality (disease). In contrast, only abnormal functionality (physiology) of the body will show up as a distinct visualization — “hot” spot (increased uptake) on a PET scan image (as pointed by the arrow in Figure 1). The rest of the normal tissues and organs will show as a light and faint background. This distinct feature of visualization of functional abnormality in the cellular and molecular level enables molecular imaging to detect hidden cancers in an early stage before any signs of anatomical change (Mankoff, 2007; Peterson et al., 2009).

PET whole body imaging in cancer provides the means to (i) identify early disease, (ii) differentiate benign from malignant lesions, (iii) examine all organs for metastases, and (iv) determine therapeutic effectiveness. Diagnostic accuracy of PET is 8-43% higher than conventional procedures and changes treatment in 20-40% of the patients ... in lung and colorectal cancers, melanoma, and lymphoma, with similar findings in breast, ovarian, head and neck, and renal cancers. (Phelps, 2000, p. 9226)

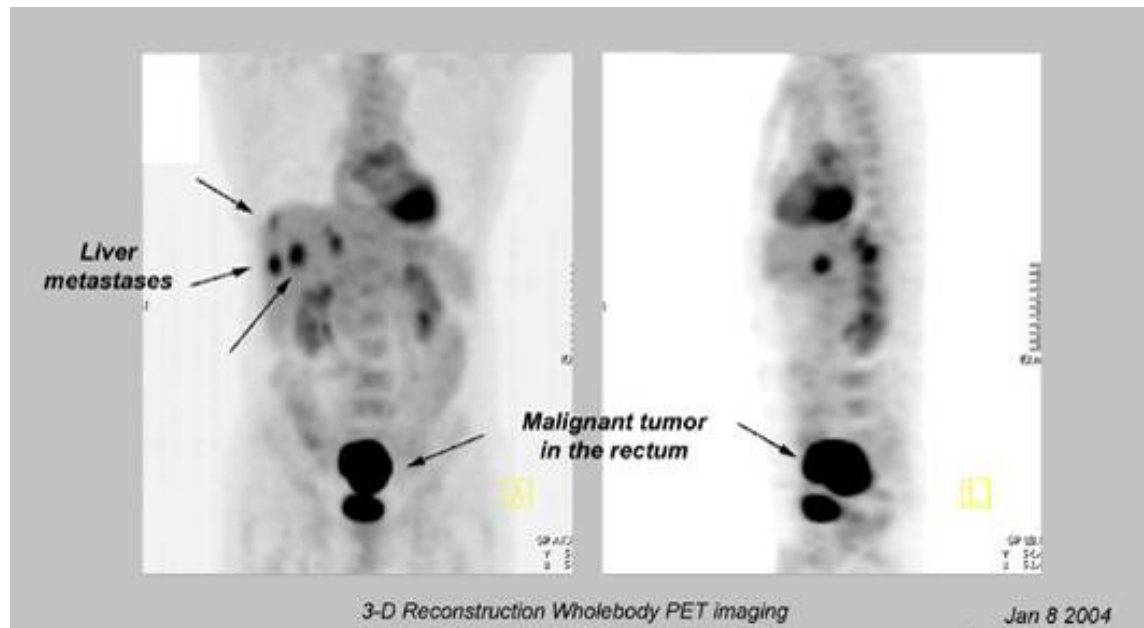
### **Principle of $^{18}\text{F}$ -FDG PET**

Today, the most commonly used PET tracer for clinical molecular imaging in oncology is  $^{18}\text{F}$ -FDG.  $^{18}\text{F}$ -FDG is an analog of glucose labeled with a radioactive positron emitter. The definition of cancer, in liberal terms, is rapid cell growth and replication without control. Therefore, cancer cells' metabolic rate is two to 10 times more than that of normal cells. “ $^{18}\text{F}$ -FDG PET exploits the typically increased glucose



metabolism of tumor tissues, compared with surrounding normal tissues” (Peterson et al., 2009, p. 156).

In a typical  $^{18}\text{F}$ -FDG PET examination, the radioactive  $^{18}\text{F}$ -FDG is injected intravenously. Through a PET scanner, the radioactive signals emitted by  $^{18}\text{F}$ -FDG are transformed into a three-dimensional image of a human body, and those cancer tissues are lit up as hot spots for visualization. This is the principle behind an  $^{18}\text{F}$ -FDG PET (Peterson et al., 2009; Phelps, 2000).



*Figure 2.* PET images of colorectal cancer.

As illustrated in Figure 2, the radioactive sugar (glucose) injected into the body was absorbed by the cancer cells in a much higher ratio. They showed up as hot spots

(a very large and intensive primary tumor in the rectum, and multiple liver metastases) on a three-dimensional PET image compared to surrounding normal tissues, making them the easy targets for disease identification.

### **The Development of PET-CT**

PET-CT, which captured the award of “Time Magazine's Medical Invention of the Year 2000” (Jaroff, 2000), is a technological breakthrough which integrates two separate diagnostic modalities, anatomical imaging (CT), and molecular and physiological imaging (PET), into one device and procedure. This combination results in high-resolution anatomical images accurately fused with functional data and the further increase of sensitivity and specificity of cancer imaging (Townsend, 2008). The imaging time per patient is reduced by 60% as well (Sitt & Ho, 2002). Using today's most advanced model, Biograph m-CT, a whole body PET-CT scan can be done in five minutes, a 90% reduction in imaging time compared to the first generation of dedicated PET scanner (Siemens, 2010).

In Figure 3, the top row is PET images; the middle row is PET-CT fusion images; and the bottom row is CT images. Those bright spots on the top row of the PET images showed the multiple and extensive metastases of cancer cells in both lungs, which provide the diagnosis of the patient. However, the locations of those diseased lymph nodes were not precise because there was no distinct anatomical reference (Townsend, 2008). The bottom row of CT images demonstrated a clear anatomical structure of the lung, which serves as a road map of the human body. Combining the top row of PET images and the bottom row of CT images, the middle row of the PET-CT

fusion image not only provided the patient's diagnosis but also the exact location of those metastatic lymph nodes.

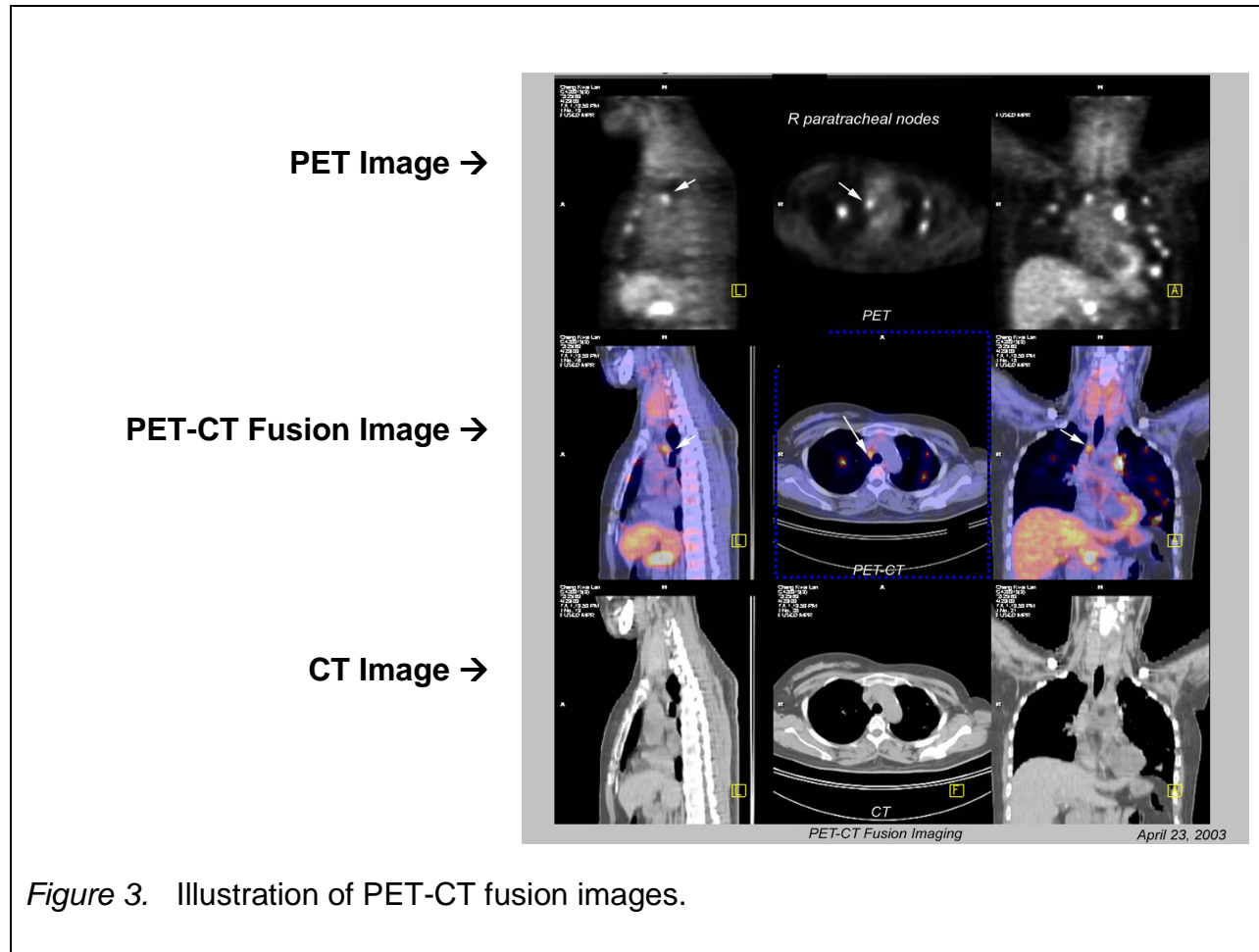


Figure 3 illustrates how the functional data (PET) and the anatomical data (CT) of two imaging modalities combined together increase the sensitivity and specificity of cancer imaging.

### **Diagnostic Effectiveness of PET and PET-CT in Oncology**

$^{18}\text{F}$ -FDG PET allows the detection of malignant tumors based on increased glucose uptake (metabolism). In a typical PET imaging, the scan range will cover from the base of the skull down to the middle of the thigh. Basically, most of the internal organs will be covered by a single image to determine if the patient has concealed cancer. As cancer cells are generally highly metabolically active and divide rapidly, they consume two to 10 times more glucose than normal cells (Peterson et al., 2009). Therefore, they appear as “hot spots” in the PET scan, which make them the easy target for tumor identification.

As an example, approximately 40% of the diagnosed solitary pulmonary lung nodule cases are malignant (Bury et al., 1996). PET scan has the ability to distinguish between malignant and benign nodules with a 90%+ accuracy. According to Buck et al., “ $^{18}\text{F}$ -FDG PET has a sensitivity of 89%-100%, a specificity of 69%-100%, and an accuracy of 89%-96%” (2010, p. 8).

### **Evaluation of Response to Treatment**

According to the standard Response Evaluation Criteria in Solid Tumors used by the World Health Organization (WHO, 2007), the response to treatment is measured and estimated by the volume reduction of the tumor. However, there is a time lag of between three to 12 months from the time of the tumor responding to therapy to the reduction of the tumor volume (Buck et al., 2010). In contrast, PET measures the glucose metabolism as an indicator of effective therapy because cancer that is successfully treated will no longer be metabolically active (Buck et al., 2010).

Therefore, PET scan can show the effectiveness, at a much earlier time, of surgery, chemotherapy, and radiotherapy in the treatment of cancer.

### **<sup>18</sup>F-FDG PET-CT to Aid in the Planning of Radiotherapy**

The planning of radiotherapy has traditionally relied heavily on CT using the Response Evaluation Criteria in Solid Tumors, which measures the physical volume of the target volume. The use of metabolic information from PET leads to the measurement of biologic target volume, which can alter the radiation field by increasing or reducing the target volume. Increasingly, <sup>18</sup>F-FDG PET-CT is being incorporated into the treatment-planning process and promises to improve the ability to confidently identify regions of disease (Ford, Herman, Yorke, & Wahl, 2009).

For example, a positive response from previous treatment may show a shrinking biologic target volume on PET images compared to the same physical tumor size on CT images. Consequently, by applying the PET data, the radiation field can be reduced and the radiation dose to neighboring tissues can be minimized as well.

As mentioned by Buck et al., “overall survival of patients receiving PET-based radiation treatment planning was significantly higher than that of patients treated without the use of PET” (2010, p. 10). The role of <sup>18</sup>F-FDG PET is expected to continue to evolve and provide additional benefits to radiation oncology.

### **Difficulties of <sup>18</sup>F-FDG PET for Liver Cancer**

Liver cancer is one of the top three causes of cancer death in many Asian countries, including Hong Kong, Taiwan, Singapore, and Japan (Ho, Chen, Yeung, &

Cheng, 2007). Although  $^{18}\text{F}$ -FDG is very sensitive in the detection of many cancers, it is known that  $^{18}\text{F}$ -FDG PET has a 40-50% false negative rate in the detection of liver cancer (Chen, Ho, & Feng, 2004; Ho, Yu, & Yeung, 2003).

Unlike Asian countries, liver cancer is a rare disease in the United States. However, an upward trend of the disease has been shown recently because of the increasing frequency of hepatitis C viral infection and the influx of Asian immigrants (Ho *et al.*, 2003). Accurate PET imaging protocol for liver cancers did not exist at the time when PET was first introduced into Hong Kong by the Hong Kong Sanatorium & Hospital (HKSH) in 1999 (Chen, Ho, & Feng, 2004; Ho, Yu, & Yeung, 2003). In order to resolve this issue, practitioners and research scientists at HKSH explored the utilization of other PET tracers and previously published research in the detection of liver cancer. Details of how to solve this issue of liver cancer detection with PET will be elaborated on more in chapter 4 of this paper.

### **PET Utilization in Alzheimer's Disease**

PET application has gone beyond oncology. One of the major fields of research utilizing PET technology is in Alzheimer's disease. Due to the aging population, more and more people are potentially affected by this disease (Alzheimer's, 2010).

By 2030, 20% of all Americans, about 70 million people, will pass their 65<sup>th</sup> birthday (Cavanaugh, & Cavanaugh, 2010, back cover). "Life expectancy rose from 49 years in 1900 to 68.1 years in 1950 and then 77.8 years in 2004, a gain of almost 30 years in just over a century in the United States" (Himes & Meyer, 2010, p. 2). Alzheimer's disease (AD), the most common cause of dementia, will affect more and

more people. In fact, it is estimated that as many as 5.2 million people in the United States have AD (National Institute on Aging, 2010a). This number is expected to grow over the next 50 years as the population ages and life span increases (National Institute on Aging, 2010b).

In Australia, the number of people affected by dementia is expected to triple from the current 257,300 (1% population) in 2010 to 1,130,700 (2.8% of the projected total population) by 2050.... AD currently costs the Australian health system A\$3.2 billion a year in direct costs, and is expected to be A\$6 billion within 5 years. If interventions were able to delay the onset of the disease by even 5 months, there would be a 5% reduction in the cost of AD to the Australian economy; if we could delay onset by 5 years, we would halve the costs [2]. (Ellis et al., 2010, p. 291)

In Hong Kong, the 65 and over age group rose from 12% in 2006 to 12.9% in 2009 (Census & Statistics Department, 2010b). The number of people affected by AD is consistent with the increase in life expectancy and population aging of the worldwide trend. AD affects all walks of lives. An outstanding scholar of Hong Kong and the 2009 Nobel Prize winner in Physics, Dr. Charles K. Kao, is unfortunately afflicted by this disease and could not personally receive his honor in Norway.

It is a worldwide effort to address this AD issue from all fronts. Through research, more is being learned about how Alzheimer's affects the brain. The Australian Imaging Biomarkers and Lifestyle (AIBL) Flagship Study of Aging, utilizing the Pittsburgh compound B ( $^{11}\text{C}$ -PiB) PET and MRI, has completed its first 18-month

follow-up project in collaboration with the Alzheimer's Disease Neuroimaging Initiative (ADNI) worldwide effort (Ellis et al., 2010).

### **Training Needs for Physicians Entering PET Modality**

Experienced and competent physicians who can provide PET-CT analysis service are in great demand considering the rapid expansion of PET modality. Alavi and Reivich stated,

Training in diagnostic radiology and conventional nuclear medicine is inadequate for the interpretation of these complex PET studies. It is becoming quite clear that acquiring optimal skills to interpret FDG-PET images will require at least 6 months of full-time training in this discipline. Fellowships for a period of 1 to 2 weeks as a certificate of competence are unjustifiable and in fact will be a disservice to the medical community. (2002, p. 2)



## **CHAPTER 3**

### **METHODS AND PROCEDURES**

#### **Introduction**

The purpose of this research study is to (i) explore the factors contributing to the PET utilization development in Hong Kong; and (ii) find out if those factors are applicable to other developing countries.

The research questions used as the key concern of the study were:

Question 1. What is the clinical advantage of PET and PET-CT in the detection and monitoring of cancer patients compared to conventional diagnostic imaging modalities?

Question 2. How has the medical environment in Hong Kong affected PET utilization development?

Question 3. How has the socioeconomic environment in Hong Kong affected PET utilization development?

#### **Research Design**

The goal of this research was to explore and understand the current practice of PET imaging modality in Hong Kong, and to evaluate if these factors are applicable to other developing countries. This type of study is characterized as exploratory and explanatory. It is, according to McMillan and Schumacher (2010), "To identify relationships influencing the phenomena" (p. 324). To achieve this objective, the researcher utilized a qualitative approach based mainly on direct observation of the common practice related to this field complemented with quantitative data analysis.

A study with an emergent design was conducted to examine and understand what factors were contributing to this phenomenon. Three major approaches were utilized in this qualitative research: Ethnography—in-depth description and interpretation of cultural patterns and meanings within a specified culture or social group; Case Study—in-depth analysis of single entity; and Phenomenology Study—description and interpretation of the experiences of participants regarding particular events in order to understand the meaning ascribed to those events (McMillan & Schumacher, 2010).

To begin explaining this complex phenomenon, the researcher collected data from the medical and socioeconomic environment in Hong Kong. Secondly, the author used purposeful sampling including individuals, groups, documents, reports, and sites to retrieve information-rich cases for an in-depth study. It should be noted that the researcher is himself one of the pioneers of the PET imaging modality practice who introduced this new technology to Hong Kong. Per communications with research institution's representative, IRB approval was not required for this study (R. Sinha., personal communication, November 30, 2011).

### **Sampling Strategy**

The purpose of the sampling strategy was to search for information-rich key informants, events, or sites to study. The sampling strategy included convenient sampling and sampling by case type. The sampling by case type consisted of an extreme case and a typical case. A leader of PET medical imaging modality in Hong Kong was chosen as the extreme case. One typical case from a private health sector

was selected to reflect the practical situation. Due to the reluctance of releasing sensitive operational data, only one private PET center other than the leading PET center was willing to release operational data on conditions of anonymity.

### **Research Methodology and Data Collection**

First, a quantitative approach was utilized in answering research question #1 about the clinical advantage of PET and PET-CT in the detection and monitoring of cancer patients, because quantitative data were obtainable and available for this issue.

For research questions #2 and #3, three aspects of the qualitative approach were utilized in this research; in-depth description and interpretation of cultural patterns; in-depth analysis of a single entity; and description and interpretation of the experiences of participants regarding particular events. Due to the small amount of written information about the PET cost data survey, circuitous and indirect supporting data were utilized to illustrate the factors influencing the proliferation of PET in Hong Kong. In order to estimate the socioeconomic impact on PET development, a cost structure analysis with a breakdown of the operational budget of PET facility was assessed. Details of the assumptions and estimates for this cost analysis are given in Chapter 4.

As the application of PET technology in developing countries only occurred in the last 10 years, limited prior research is available for correlations. The investigator collected information directly from the source, i.e. directly observed and interacted with the settings, participants, and documents studied. All of those activities essentially formed the data collection instrument. As the researcher was an active PET

practitioner, his active experience with the PET development in Hong Kong was the backbone of this research.

### **Inductive Data Analysis**

All data collected was synthesized inductively to generate findings. Through inductive reasoning, these seemingly unconnected and perhaps too extensive findings generated conclusions to answer the research questions, and ultimately, provided a new perspective to the statement of the problem. This analysis was developed using a bottom up approach according to the detailed particulars. It opened up a new way of understanding PET utilization in a developing region, as contrasted with the medical environment of developed nations such as Germany and the U.S.

## **CHAPTER 4**

### **FINDINGS AND DATA ANALYSIS**

#### **Introduction**

The purpose of this research study is to (i) explore the factors contributing to the PET utilization development in Hong Kong; and (ii) find out if those factors are applicable to other developing countries.

The research questions used as the key concern of the study were:

Question 1. What is the clinical advantage of PET and PET-CT in the detection and monitoring of cancer patients compared to conventional diagnostic imaging modalities?

Question 2. How has the medical environment in Hong Kong affected PET utilization development?

Question 3. How has the socioeconomic environment in Hong Kong affected PET utilization development?

#### **Research Question Results**

##### **Research Question 1**

What is the clinical advantage of PET and PET-CT in the detection and monitoring of cancer patients compared to conventional diagnostic imaging modalities?

Referring to the principle of PET modality illustrated in Chapter 2, PET imaging distinguishes changes in cancer cells at the cellular level by detecting differences in their metabolic activity compared with normal cells. This contrasts with conventional diagnostic modalities such as CT, MRI, ultrasound, and X-ray, which detect structural

change. The research study of Jadvar, Alavi and Gambhir (2009) indicated the clinical diagnostic advantage of  $^{18}\text{F}$ -FDG PET for lung, breast, and colon cancers.

Table 2 is a summary of 39 meta-analysis results by Gould et al. (2003) comparing the diagnostic accuracy of CT and  $^{18}\text{F}$ -FDG PET for mediastinal staging in patients with non-small cell lung cancer, and it demonstrated that PET was more accurate than CT.

Table 2

*PET and CT for Mediastinal Staging in Lung Cancer*

Variable	Median Sensitivity (IQR)	Median Specificity (IQR)
CT (1119 patients in 23 studies)	61 (50-71)	79 (66-89)
PET (1959 patients in 32 studies)	85 (67-91)	90 (82-96)

*Note:* IQR = interquartile range

*Source:* Gould, M. K., Kuschner, W. G., Rydzak, C. E., Maclean, C. C., Demas, A. N., ...Owens, D. K. (2003). Test performance of positron emission tomography and computed tomography for mediastinal staging in patients with non-small cell lung cancer. *Annals of Internal Medicine*, 139, 879-892.

As approximately 40% of solitary pulmonary lung nodule cases are malignant (Bury et al., 1996),  $^{18}\text{F}$ -FDG PET has the ability to distinguish between malignant and benign nodules with “a sensitivity of 89%-100%, a specificity of 69%-100%, and an accuracy of 89%-96%”, as stated by Buck et al. (2010, p. 8).

Table 3

*Sensitivity and Specificity of PET and CDI in Detection of Colorectal Cancer Recurrence*

	Year	Sensitivity (CDI)	Sensitivity (PET)	Specificity (CDI)	Specificity (PET)
Beets et al. <sup>24</sup>	1994	8/15 (53)	14/15 (93)	18/20 (90)	19/20 (95)
Schiepers et al. <sup>35</sup>	1995	30/47 (65)	45/47 (96)	25/25(72)	34/35 (97)
Keogan et al. <sup>36</sup>	1997	11/13 (84)	12/13 (92)	2/5 (40)	5/5 (100)
Ogunbiyi et al. <sup>37</sup>	1997	-	19/21 (90)	-	26/26 (100)
Valk et al. <sup>28</sup>	1999	21/31 (68)	30/31 (97)	76/84 (90)	81/84 (96)
Flamen et al. <sup>38</sup>	1999	24/33 (73)	31/33 (94)	62/70 (89)	69/70 (99)
Whiteford et al. <sup>31</sup>	2000	22/31 (71)	28/31 (90)	33/39 (85)	35/39 (92)
Staib et al. <sup>30</sup>	2000	-	22/23 (96)	-	74/77 (96)
Lonneux et al. <sup>34</sup>	2002	11/15 (73)	15/15 (100)	61/63 (96)	62/63 (98)

CDI = conventional diagnostic imaging. PET = Positron Emission Tomography  
Data are numbers with percentages in parentheses.

*Source:* Watson, A. J., Lolohea, S., Robertson, G. M., & Frizelle, F. A. (2006). The role of positron emission tomography in the management of recurrent colorectal cancer: A review. *Diseases of the Colon & Rectum*, 50, 102-114. doi: 10.1007/s10350-006-0735-7

Table 3 is a statistical summary of a literature research study by Watson, Lolohea, Robertson, and Frizelle (2006) that reviewed the role of PET in the assessment of patients with suspected recurrent colorectal cancer. The result of this study, covering patient data from 1994 to 2002, further confirmed PET is more sensitive and more specific than conventional diagnostic imaging for metastatic disease and local recurrence of colorectal cancer respectively.

**Conclusion.** As stated by Phelps (2000), one of the PET inventors, “Diagnostic accuracy of PET is 8-43% higher than conventional procedures and changes treatment in 20-40% of the patients ... in lung and colorectal cancers, melanoma, and lymphoma, with similar findings in breast, ovarian, head and neck, and renal cancers” (p. 9226).

The emergence of PET-CT hybrid scanners resulted in high-resolution anatomical images accurately fused with functional data, and this new technology further increased the sensitivity and specificity of cancer imaging with PET modality (Townsend, 2008).

## **Research Question 2**

How has the medical environment in Hong Kong affected PET utilization development?

According to the latest information confirmed by Mok of the Radiation Board (division of the Department of Health and a radiation governing body in Hong Kong, Appendix A), there were a total of 12 PET-CT scanners in Hong Kong in 2011. Four were at public hospitals (three were operational and one was under installation), and the other eight were in the private sector. The private sector actually leads the clinical PET development in Hong Kong. According to the information of establishment date provided by the Radiation Board (Appendix A), the first, second, and the third PET scanners were set up by three private entities in 1998, 2001, and 2002 respectively. Four years after the introduction of PET technology to Hong Kong, the first public PET facility was finally launched into service in Queen Elizabeth Hospital in 2003. Since the



first PET scanner became operational in 1999, there have been two private PET centers were shut down.

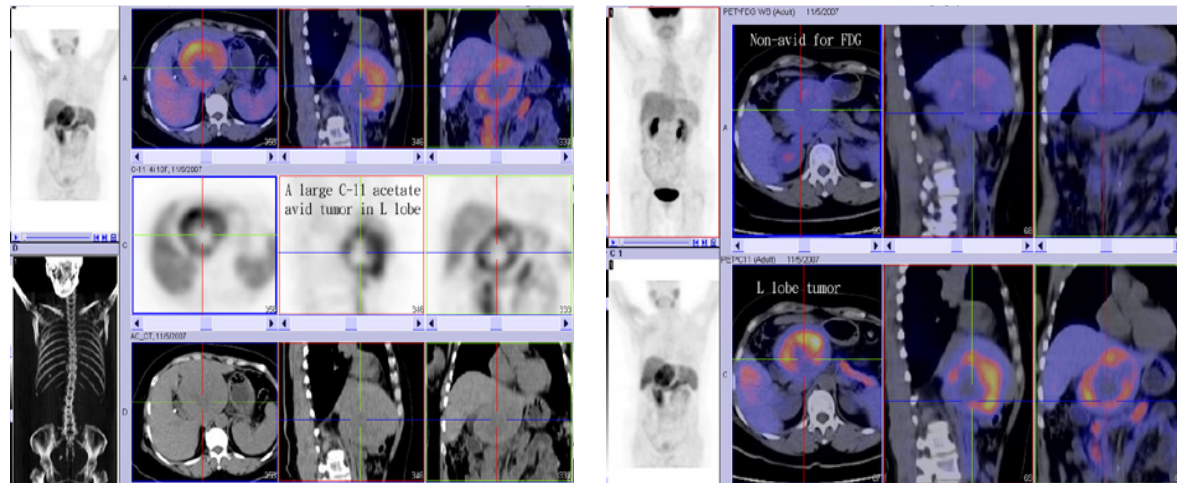
Nevertheless, the private sector still has a dominant capacity of a two to one ratio compared with the public sector today. Looking back at the introduction of PET technology, it went through numerous roadblocks to gain the confidence and acceptance of medical professionals as well as cancer patients (HKSH, 2009). One of the major hurdles was related to a locally profound cancer type – liver cancer which was difficult to diagnosis using  $^{18}\text{F}$ -FDG PET alone (Chen, Ho, & Feng, 2004; Ho, Yu, & Yeung, 2003).

Through an in-depth case study analysis of liver cancer, a unique clinical PET expertise was established by the leader of a PET facility in Hong Kong (Ho et al., 2007).

**Difficulties of  $^{18}\text{F}$ -FDG PET for liver cancer.** Liver cancer is one of the top three causes of cancer death in many Asian countries, including China, Taiwan, Singapore, and Japan (Ho et al., 2007). Although  $^{18}\text{F}$ -FDG is very sensitive in the detection of many cancers, it is known that  $^{18}\text{F}$ -FDG PET has a 40-50% false negative rate in the detection of liver cancer (Chen et al., 2004; Ho et al., 2003).

Unlike in Asian countries, liver cancer is a rare disease in the United States. There has only been an upward trend of the disease recently because of the increasing frequency of the hepatitis C viral infection and the influx of Asian immigrants (Ho et al., 2003). Accurate PET imaging protocol for liver cancers did not exist at the time when PET was first introduced into Hong Kong by the Hong Kong Sanatorium & Hospital (HKSH) in 1999 (HKSH, 2009). In order to resolve this issue, practitioners and

research scientists at HKSH explored the utilization of other PET tracers and previously published research in the detection of liver cancer.

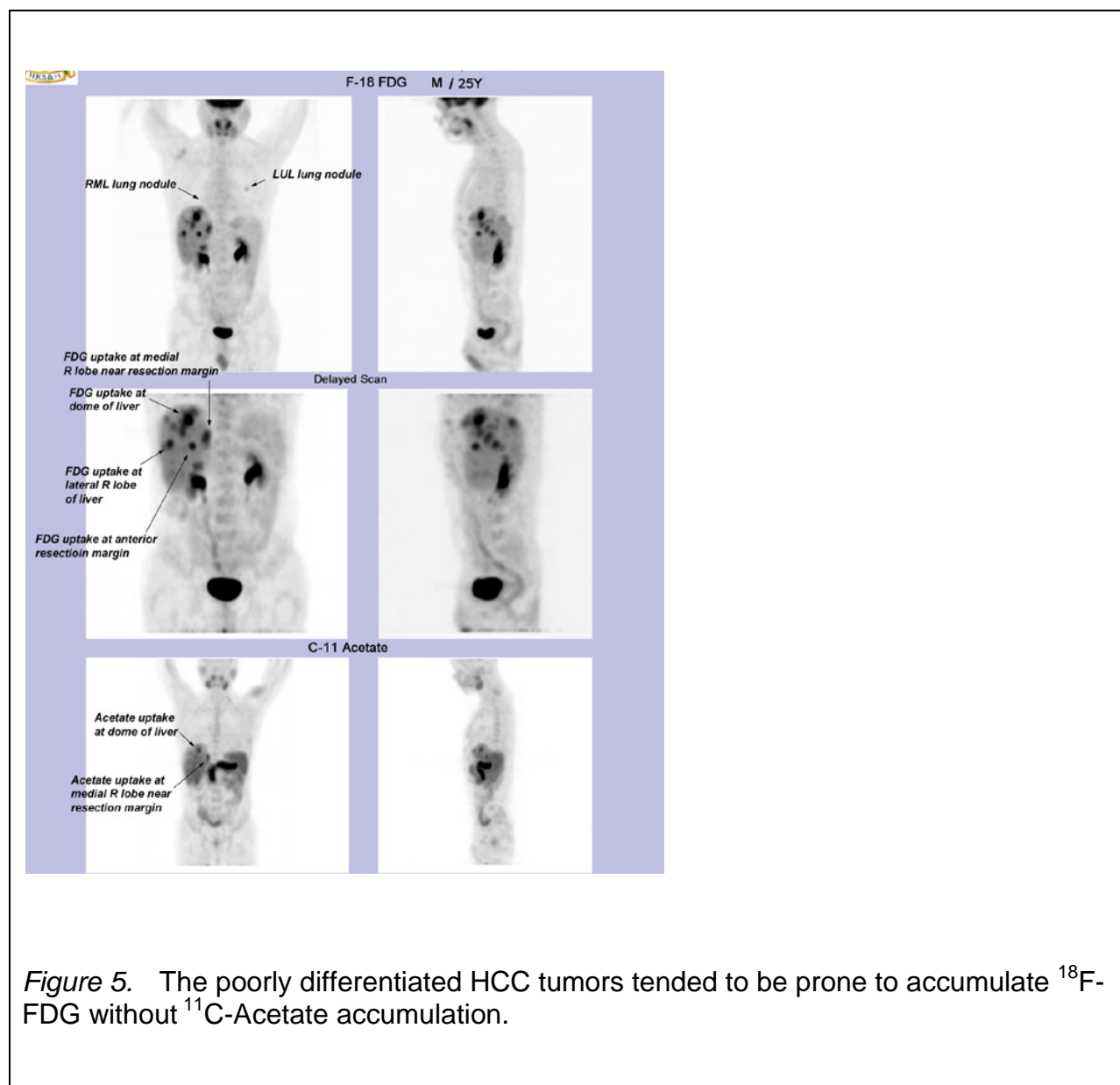


*Figure 4.* The well-differentiated HCCs accumulate  $^{11}\text{C}$ -Acetate without  $^{18}\text{F}$ -FDG uptake.

From 2000 to 2002, through a series of tracer kinetic modeling, dynamic analysis, and numerous trials of imaging protocols, a significantly sensitive and specific protocol of  $^{11}\text{C}$ -Acetate PET was established in complementing the deficiency of  $^{18}\text{F}$ -FDG in PET imaging of liver masses (Chen, Ho, & Feng, 2003; Chen et al., 2004; Chen, Ho, & Feng, 2006; Ho et al., 2003).

Ho et al. (2007) further explored and found that the pattern of tracer uptake by the tumors was correlated with tumor cellular differentiation. The study showed the well-differentiated liver cancer tumors preferentially accumulated  $^{11}\text{C}$ -Acetate (illustrated

in Figure. 4), whereas the poorly differentiated tumors tended to accumulate  $^{18}\text{F}$ -FDG (illustrated in Figure. 5).



The research result and the dual-tracer imaging protocol of  $^{11}\text{C}$ -Acetate and  $^{18}\text{F}$ -FDG PET published by Ho et al. (2007) were well-received and recognized by the

molecular imaging community. It was presented as the cover article for the 2007 issue of the *Journal of Nuclear Medicine*—the leading medical journal in the field of nuclear medicine and molecular imaging. Today, liver cancer is no longer a blank space within the spectrum of PET diagnosis.

**Collaborated PET service.** As previously mentioned, liver cancer is one of the top three causes of cancer death in many Asian countries. According to the clinical data of The Department of Surgery at The University of Hong Kong (HKU) (2010), tumor resection and transplant are the most effective cures for this disease. For patients with unresectable tumors, the advent of radiofrequency ablation and transarterial oily chemoembolization offers an effective treatment alternative. The Department of Surgery at HKU is the largest liver cancer referral center in the region. Its liver transplant service developed into the largest program in China and Southeast Asia, and it is renowned internationally for its excellence in clinical service and research. By the end of October 2008, a total of 659 liver transplants had been performed with one-year, three-year, and five-year survival rates of 92%, 87%, and 84% respectively, and the mortality rate of hepatic resection for liver cancer was approaching 0% (Department of Surgery, 2010).

Liver cancer patients from around the world go to Hong Kong to seek treatment because of its specialty in dealing with this disease. Through collaborations with HKU and other liver cancer oncologists, HKSH (2009) fully utilized the dual-tracer PET protocols in the aid of diagnosis as well as therapeutic response monitoring of these patients. Due to the strong demand, patients may need to wait between a few days to

one week to schedule their exams, as HKSH is the only center providing  $^{11}\text{C}$ -Acetate and  $^{18}\text{F}$ -FDG dual tracer PET-CT service.

### **Research Question 3**

How has the socioeconomic environment in Hong Kong affected PET utilization development?

Due to the confidentiality concern of their operating costs, only two of the PET centers in Hong Kong were willing to provide their service volume figures and an estimate of patient demographic data. The rest of the groups were reluctant and did not respond to the request from this study. In order to provide an approximation of the cost of a PET facility, a simplified breakdown of the operational budget analysis was constructed along with a breakeven throughput estimate.

The major cost components of a PET facility were narrowed down to its PET-CT scanner, the real estate to house the facility, salaries and benefits associated with the clinical staff, medical supplies, utilities, and administrative costs to simplify this cost analysis. According to the study of Keppler and Conti, the breakeven throughput for a high-end PET scanner was in the range of 6.75 procedures per day based on the financial data collected from PET centers in the U.S. (2001). As all the existing facilities in Hong Kong were equipped with PET-CT scanners (Radiation Board, appendix B) which are considered high-end PET scanners (Keppler & Conti, 2001), this breakeven point estimate would be a good reference when applying this cost analysis.

The first item on the cost list is the PET-CT scanner. As those scanners are mainly manufactured either by Siemens (with manufacturing plants both in the U.S. and

Germany) and General Electric (with manufacturing plants mainly in the U.S.), these would be an additional overseas premium and a higher freight charge when these scanners were purchased by the medical centers in Hong Kong. Therefore, the end-users in Hong Kong would be required to pay a higher cost than their counterparts in the U.S. or Germany. That translated into a higher upfront setup cost of the medical equipment in Hong Kong.

Table 4

Global Office Occupancy Costs

Market (Ranked in December 2010)	Class A/Prime Space (US\$ per square foot)
1. Hong Kong	191.97
2. London – West End	133.02
14. New York, NY – Midtown Manhattan	65.04
24. Washington, DC	53.59
29. Frankfurt	50.21

*Note:* Adopted from Colliers International (2011), *Global office real estate review*.

The second expansive item on the list is the real estate housing the PET facility. According to a recent property survey, illustrated in Table 4, by Colliers (2011), Hong Kong was ranked the number one city with the highest occupancy cost in the world (US\$191.97/square foot). New York City (Midtown Manhattan), the highest ranking city from the U.S., came in #14 (US\$65.04/square foot). The second highest ranking city from the U.S. was Washington, DC (US\$53.59/square foot), which was rated as #24. The highest ranking city from Germany was Frankfurt, which was rated as a distant #29

(US\$50.21/square foot). Overall, the cost of space in Hong Kong was three times more expensive than that in the U.S. and Germany.

The third item on the cost list is the cost of professional staff. A salary survey conducted by the Nuclear Medicine Technology Certification Board in 2006 identified the salary range for a PET technologist in the U.S. was from US\$40,000 to US\$97,700, with a median value of US\$62,868 (2007). Compared to data retrieved from the Master Pay Scale of the Civil Service Bureau in Hong Kong (2011), the salary level of the same technologist position was from US\$46,151 to US\$92,608. These two sets of data from the U.S. and Hong Kong respectively, therefore, indicated a comparable salary range for the PET clinical staff from these two regions of the world.

An assumption was made that the PET clinical staff cost in Germany would fall into a similar range of the U.S. because the GDP per capita of these two countries were similar (World Bank, 2010).

The last few items for comparison were medical supplies, utility cost, and administrative cost. Although the PET facilities in Hong Kong needed to import all their medical supplies from abroad, and hence might incur higher costs than its counterparts in the U.S. and Germany, the researcher made a simplified assumption and assumed those costs would fall into a similar range within those regions.

Using the financial data derived from the U.S. and Germany as an average standard, the costs of setting up and operating a PET facility in Hong Kong was compared against those standards to arrive at a qualitative comparison. Table 5 is the consolidation summary of the data listed in the previous paragraphs.

Table 5

## A Simplified Cost Analysis of PET-CT Facility

	U.S.	Germany	Hong Kong
Cost of PET-CT Scanner	average	average	higher
Cost of Space	average	average	3 x higher
Cost of Professional Staff	average	average	average
Other Costs (medical supplies, utilities, and administrative cost)	average	average	average

According to Keppler and Conti (2001), the scanner and space costs were the dominant capital expenditures, making up over 80% of total costs of a PET facility. For this reason, it is clear to conclude from Table 5 that the total cost of setting up and operating a PET center in Hong Kong would be much higher than for its counterparts in the U.S. and Germany. As the breakeven point for a high-end PET scanner was in the range of 6.75 procedures per day based on the financial data in the U.S. (Keppler et al., 2001), PET centers in Hong Kong would require a procedure number higher than the 6.75 in order to breakeven. However, the majority of PET centers in Hong Kong performed six to eight procedures a day (Anonymous, personal communication, October 29, 2010), which would probably fall short of the breakeven point based on the financial viability calculation from Keppler et al. (2009).

Excluding the extreme case of a PET center leader in Hong Kong, which performed scanning on 25 to 27 patients a day on its two PET scanners (M. Yeung., personal communication, October 27, 2010), the majority of the PET centers in Hong



Kong have been operational for more than three years. If a PET facility was not able to produce positive net income in more than three years, its operation would probably not be sustainable. According to information confirmed by the Radiation Board (Appendix A), two private PET centers were closed in the last few years in Hong Kong. These two centers did not last more than two years (J. Cheung., personal communication, October 27, 2010; October 9, 2011). Therefore, the researcher would make an assumption that the existing PET centers with more than three years of operational history were financially viable.

If this viable operation assumption of the researcher is valid for the majority of PET centers in Hong Kong, how can those centers sustain a financially viable operation with a substantially higher capital expenditure and a lower procedure number per day than the breakeven point?

In order to answer this question, an approach of in-depth description and interpretation of cultural patterns, an ethnography, was utilized to explore the possible answers.

**Direct payment culture.** According to the information from Buck *et al.* (2010), the costs of PET examination ranged between approximately \$885 and \$1,474 in Germany, and \$1,030 to \$2,109 in the United Kingdom. According to two research studies completed in the early 2000s, the cost of PET examination in the US ranged approximately from \$1,600 to \$2,986 (Berger, Gould, & Barnett 2003; Keppler & Conti, 2001). In Hong Kong, the cost range was approximately between \$900 and \$2,179 (M. Yeung., personal communication, October 26, 2010). Based on the data shown in

these research studies, the cost of obtaining a PET scan was in a similar range among European countries, the U.S., and Hong Kong.

Hong Kong is considered to be a direct payment culture as compared to its counterparts of the US and Europe. The cost of a PET examination is paid out directly from a patient's own pocket in most of the cases in Hong Kong. In contrast, costs of PET examination in the US and Europe are reimbursed by insurance companies, Medicare, or other social medicine systems (Benjamin, 1999; Biersack, 2009). In Hong Kong, the common payment methods for medical providers are cash, credit cards such as Visa and MasterCard, and checks, as shown on the lists of medical providers from the local US Consulate (US Consulate Hong Kong, 2011). For patients who have medical insurance coverage, the common practice is that patients will settle the medical bills with their medical providers first, and then the insurance companies will reimburse the medical costs to their clients after the insurance claims are approved. That is equivalent to 100% reimbursement of the medical system in the United States, which is an incomprehensible level.

Benjamin (1999) stated that numerous HMOs have made a hasty withdrawal from the Medicare market, citing increased costs and inadequate federal reimbursement. Biersack (2009) pointed out that the PET-CT utilization development was hampered by the reimbursement issues in Germany as well.

Appendix B holds a collection of the medical claim forms used by major insurance companies in Hong Kong. One of the distinct requirements on all of these forms is to furnish medical or hospital payment receipts showing the charges for the treatment received. This is another evidence of the direct payment culture.

As the imaging charge is settled between patients and the facility at the same time that the PET service is performed, the most important issues of manpower savings were outlined in the following list:

1. Sending bills to insurance providers or reimbursement agencies
2. Keeping track of the correct reimbursement amount and following up on any overdue payment
3. Updating the service billing coding
4. Fulfilling the ongoing updates of regulatory requirements such as the Centers for Medicare and Medicaid Services in order to be eligible for reimbursement

The removal of the entire insurance reimbursement department, which is a common division within any medical institution in the U.S. and in Germany (Benjamin, 1999; Biersack, 2009), provides tremendous savings toward the operation of a PET facility. Furthermore, this direct payment practice effectively eradicates the issue of unpaid or underpaid bills from service providers, and achieves a solid accounting status equivalent to 100% reimbursement.

By eliminating the reimbursement burden and the middle layer of insurance cost with the direct payment culture, PET centers in Hong Kong are able to operate in a more cost-effective and economically efficient way than their counterparts in Europe and the United States.

Another prospect of a qualitative approach was to describe and interpret a sudden phenomenal event of the influx of patients into Hong Kong.

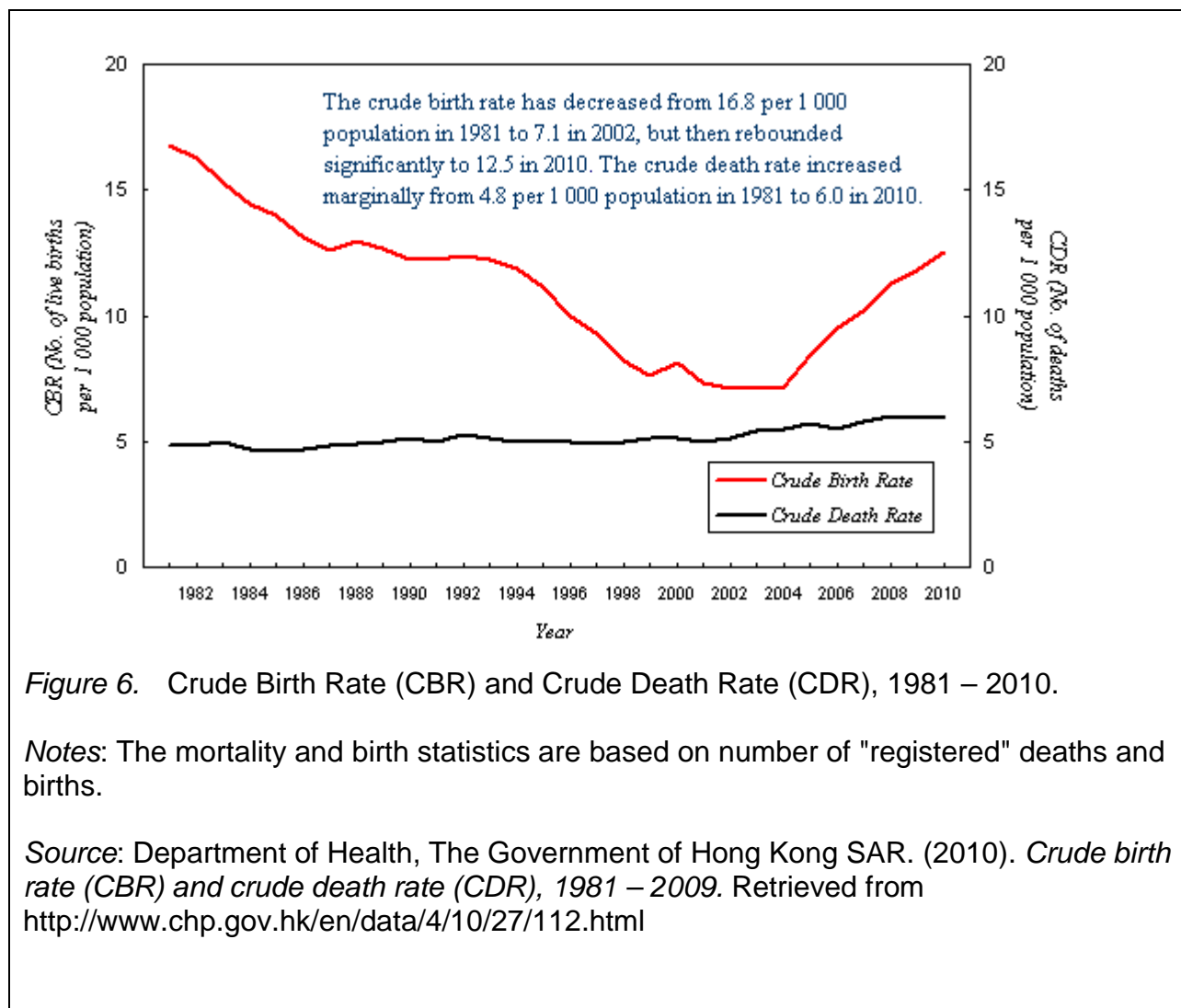
**Influx of patients.** For many years, Hong Kong has been a medical center for overseas Chinese because of its heritage link and high medical standards compared to

the neighboring Southeast Asian countries (Hokari, 1996). Since the signing of the Mainland and Hong Kong Closer Economic Partnership Arrangement (CEPA) in 2003, people from China can travel to Hong Kong with fewer restrictions (2003). One of the purposes of Mainland Chinese traveling to Hong Kong is to seek medical services because they trust the ethical standards and the professionalism displayed by healthcare professionals during the 2003 Severe Acute Respiratory Syndrome (SARS) outbreak (Lee, 2003). Many patients are angry and tired of the unethical practices of their healthcare providers in China, such as (i) ordering high cost but unnecessary diagnostic services for a higher profit, (ii) prescribing overpriced medications for a higher profit, and (iii) reports of physicians not giving patients the proper treatment, thus causing unnecessary deaths and suffering (Ho, 1995).

In addition to the devotion and self-sacrifice of medical and healthcare staff exhibited during the SARS outbreak (Lee, 2003), all 13 private hospitals in Hong Kong are accredited either by the Trent Accreditation Board from the United Kingdom, or by the Australia Council on Healthcare Standards (ACHS) from Australia (The Hong Kong Private Hospitals Association, 2011). Some of these medical institutes are accredited by both accreditation organizations. The Trent Accreditation Board is an assessment scheme to support the development, integration, and assessment of organizational standards in the United Kingdom for small to medium size hospitals (Trent Accreditation Scheme, 2011). The Australia Council on Healthcare Standards (ACHS) is Australia's leading health care assessment and accreditation provider (ACHS, 2011). Due to the history of 154 years of British colonial rule, Hong Kong private hospitals are trying to

attach with those widely recognized standards within the developed commonwealth countries to set themselves apart by providing an international standard of care.

Highly qualified and dedicated medical professionals combined with the state of the art medical equipment and an international recognizable standard of care attracts patients from Mainland China to seek medical services in Hong Kong.



The obvious example of this influx of patient from Mainland China is the reverse trend of the birth rate in Hong Kong. According to the Hong Kong Department of Health (2010), the birth rate has decreased from 16.8 per 1,000 population in 1981 to 7.1 in 2002, and leveled off in 2003. However, the birth rate has begun to show a reverse trend since 2004, the first year CEPA became effective. It then reached a significant height of 12.5 in 2010, a 76.1 % jump in just six years, and kept growing.

This birth rate figure indicates that approximately 50% of the newborn babies in Hong Kong currently are coming from Mainland China. This unprecedented phenomenon prompted the Hospital Authority of Hong Kong (the governing body of all public hospitals in Hong Kong) to set up a separate admission procedure for pregnant mothers from Mainland China in order to maintain an adequate maternity service for its local citizens (Hospital Authority, 2010).

Another source of the patient influx is the expatriates from foreign companies. Yang (2010) stated that between 1980 and 2007 China approved a total of 632,298 foreign-funded enterprises, and used US\$766.655 billion in foreign investment. As the global economy is shifting to the East, more and more foreign companies are either setting up new offices or expanding their existing operations in China and Hong Kong. When those expatriates seek medical services, they will go to Hong Kong simply because they have confidence in physicians with U.S. government recognized qualifications to practice in the specialties and those doctors are sufficiently competent in the English language to provide services to English-speaking clients (US Consulate Hong Kong, 2011). Hong Kong, given its geographic proximity to China, its bilingual culture (English and Chinese), as well as a well-established pool of medical

professionals certified in the United States, is a natural and convenient hub to accommodate an expatriate's medical needs.

Although there are no official or direct statistics showing how many patients from abroad are currently seeking PET services in Hong Kong, a personal survey from the author showed that there was a range of 8% to 12% of patients who were non-Hong Kong citizens (M. Yeung., personal communication, October 27, 2010; Anonymous, personal communication, October 29, 2010). This tentative influx of patient percentages translated into about 15 extra patients for the leading PET center as well as about four extra patients for the average PET centers in Hong Kong in a week.

### **The Applicability of PET Utilization Experience to Developing Countries**

After exploring the factors contributing to the PET utilization development in Hong Kong, the author determined if those same factors were applicable to other developing countries. As mentioned in previous paragraphs, the major factors contributing to a higher ratio of PET-CT scanners in Hong Kong are:

- 1) medical expertise in a regionally profound disease
- 2) the direct payment culture which enables an economically efficient and a cost-effective operation
- 3) the influx of patients from neighboring countries
- 4) the reputation of its medical services

As factors #1 and # 4 can be closely related and complementary to each other, these two criteria will be discussed in a later section of this chapter. The applicability of

factors #2 and #3 of PET utilization development experience in Hong Kong to other developing countries will be illustrated first.

**Factor #2 - The direct payment method.** The direct payment method can be readily applied to other developing countries if they wish to do so in order to boost an economically efficient and a cost-effective operation. By eliminating the reimbursement burden from the public social medical system, the private health management organization, and the middle layer of insurance cost, PET centers are able to operate in a more cost-effective and economically efficient way.

**Factor #3 - An influx of paying patients.** The goal is to create an influx of paying patients to supplement the local medical demand.

As a matter of fact, the major hurdle in utilizing PET is the financial burden associated with the costly equipment. According to Keppler and Conti (2001), the average cost of setting up a PET center with the radiopharmaceutical production capacity ranged from \$5 million (low-cost scanner) to over \$6.2 million (high-end scanner) in the U.S. The running cost ranged from \$1.6 million to over \$2.6 million per year. In order to make the service viable, the PET facility required a range from 3.45 to 6.75 procedures per day.

The advantage of the developing countries are their low property values and low wages for physicians, nurses, and other healthcare providers such as Costa Rica, India, Malaysia, Mexico, Philippines, Thailand, and similar countries. Those countries are able to provide the same medical procedures at a much lower cost (Turner, 2010).

Table 6 shows the cost of performing a similar medical procedure in India ranges from the lowest of 5.6% to highest of 21.2%, from 6.3% to 27.9% in Thailand, and from



7.8% to 32.5% in Singapore, compared to the cost in the U.S. The average cost level is about 13.4% for India (the mean of 5.6% and 21.2%), 17.1% for Thailand (the mean of 6.3% and 27.9%), and 20.2% for Singapore (the mean of 7.8% and 32.5%) of the cost in the U.S. (York, 2008).

Table 6

*Comparative Costs of Medical Procedures by Country*

Procedure	U.S.	India	Thailand	Singapore
Heart bypass	\$130,000	\$10,000	\$11,000	\$18,500
Heart valve replacement	\$160,000	\$9,000	\$10,000	\$12,500
Angioplasty	\$57,000	\$11,000	\$13,000	\$13,000
Hip replacement	\$43,000	\$9,000	\$12,000	\$12,000
Knee replacement	\$40,000	\$8,500	\$10,000	\$13,000

*Source:* ANA-OMSS Governing Council Report B June 2007--Appendix A. Adopted from York, D. (2008). Medical tourism: The trend toward outsourcing medical procedures to foreign countries. *Journal of Continuing Education in the Health Professions*, 28(2), 99-102.

According to Gould (2008), there were an estimated 47 million individuals in the U.S. who lacked health insurance. As proclaimed by York (2008), "In 2007, health care spending was estimated at \$2.2 trillion with the expectation that it will rise by 6.7% through 2017, twice the rate of inflation" (p. 100). The rising cost of medical service in

the US has fueled a movement of Americans traveling overseas for medical treatment each year (York, 2008). The low-income and middle-class Americans with limited finances are often unable to afford the cost of care in the U.S. They actually travel to India, Thailand, or elsewhere for comparatively inexpensive health service (Gould, 2008). In Southeast Asia, the health sector is expanding rapidly, attributed to rapid growth of the private sector in coping with medical tourism (Pocock & Phua, 2011).

A successful example is the Bumrungrad Hospital in Thailand. In 2006, after *60 Minutes* aired its story about the hospital, Bumrungrad was bombarded with more than 3,000 emails from the U.S. from people interested in receiving treatment there. The hospital claimed to provide care for more than 435,000 international patients every year; 58,000 of those patients were Americans (Turner, 2010). Bumrungrad Hospital is famous for its (i) "rock-bottomed price" packages for medical surgery and other procedures; (ii) the appearance and impression of a luxury hotel; and (iii) the philosophy of promoting customer satisfaction. The Bumrungrad case demonstrated that given enough incentives, price-conscious patients would travel in search of inexpensive health care (Turner, 2010).

Medical facilities in developing countries can apply similar strategies of their low property values, and low wages for physicians, nurses, and other healthcare providers to attract price-conscious patients from overseas and create an influx of foreign patients to help pay for the cost of their PET service.

**Factor #4 - The buildup of reputation.** Take the successful case mentioned above in factor #3 of the Bumrungrad Hospital in Thailand as an example. It took Bumrungrad Hospital about 10 years, from 1997 to 2006, to achieve an international

recognition through a sound and consistent corporate philosophy combined with the support of government policy (Turner, 2010). According to Pocock and Phua (2011), Thailand's medical hub policy was begun in 2003 by the Thailand Board of Investment, whilst the Ministries of Commerce and the Department of Export Promotion collaborated with private hospitals.

In 2007 alone, Thailand provided medical services for as many as 1.4 million foreign patients, including medical tourists, general tourists, and expatriates working or living in Thailand or its neighboring countries (NaRanong & NaRanong, 2011). Consequently, the buildup of a reputation is to attract an influx of paying patients who can help pay for the advanced medical equipment and diagnostic methods otherwise unaffordable and hence unavailable to its local citizens.

**Factor #1 - Medical expertise in a regional profound disease.** The purpose of establishing a medical expertise in a regional profound disease is to build a reputation, complementing the goal of attracting more fee paying foreign patients to sustain the cost of advanced medical technology. This goal can be achieved in many different ways.

First, if there is a regional profound disease readily presented in the developing country in which the PET technology can be utilized to address this disease, then, this country can directly apply the same PET development model in Hong Kong. It could establish itself as an “X” disease center similar to the liver cancer center in Hong Kong.

Second, another approach that could be applied is to group a team of highly trained medical professionals in one specialty area to launch a leading medical expertise in the region. This is the case illustrated by the success of the Escorts Heart

Institute and Research Center in Delhi and Faridabad of India. According to York (2008), the Escorts Heart Institute “performs nearly 15,000 heart operations every year and the death rate among patients during surgery is only 0.8 percent, less than half the rate of most hospitals in the U.S.” (p. 100). This sheer volume of heart operations in addition to the low cost of their surgeries, about one tenth of the cost compared to the U.S., as shown in Table 4, put the Escorts Heart Institute in a position as one of the leading heart centers in the world.

Third, take the successful case of the Bumrungrad Hospital in Thailand again as an example. The Bumrungrad Hospital positioned itself as the hub of medical tourism. Everyone can have a health assessment done as part of their touring plan to Thailand. This model of a low cost health assessment center can basically be set up in any country. As a matter of fact, governments in emerging markets such as Mexico, Philippines, and Malaysia are promoting their medical tourist industry to attract medical tourism (Pocock & Phua, 2011).

Based on the above demonstrations, all four factors of the PET development experience in Hong Kong are applicable to other developing countries. The difference is the time required to implement those policies. For factor #2 of the direct payment method, the transition can be done in a short period of time to reach the level of cost efficiency. For factors #1, #3 and #4, it may take up to 10 years to achieve the desired effects of building up a medical expertise, attracting a significant amount of patient influx, and establishing a reputation for medical tourism.

## **CHAPTER 5**

### **SUMMARY, CONCLUSIONS, RECOMMENDATIONS**

#### **Summary**

The purpose of this research study was to (i) explore the factors contributing to the PET utilization development in Hong Kong; and (ii) find out if those factors are applicable to other developing countries.

Question 1. What is the clinical advantage of PET and PET-CT in the detection and monitoring of cancer patients compared to conventional diagnostic imaging modalities?

Question 2. How has the medical environment in Hong Kong affected PET utilization development?

Question 3. How has the socioeconomic environment in Hong Kong affected PET utilization development?

#### **Research Question 1**

To summarize the literature review of chapter 2 and compare to the findings in chapter 4, the following is the evidence showing the clinical advantage of PET and PET-CT in the detection and monitoring of cancer patients.

1. The principle of PET imaging technology is to detect the abnormal accumulation of common nutrients, such as glucose, at the molecular level because the metabolic rate of cancer cells is two to 10 times higher than that of normal cells (Peterson et al., 2009). Those cancer cells will light up as hot spots compared to

surrounding normal tissues on a 3-dimensional PET image, making them the easy targets for disease identification.

2. For the evaluation of response to treatment, a PET scan can show the effectiveness of surgery, chemotherapy, and radiotherapy in the treatment of cancer at a much earlier time because it measures the metabolic activities of the cancer cells. Cancer cells that are successfully treated will no longer be metabolically active but may retain the same physical size for several months (Buck et al., 2010).

3. In the aid of radiotherapy planning, PET-based treatment planning showed a significantly higher patient survival rate than those treated without the use of PET. Therefore,  $^{18}\text{F}$ -FDG PET-CT is being incorporated into the treatment-planning process and promises to improve the ability to confidently identify regions of disease (Buck et al., 2010; Ford et al., 2009).

4. Extensive meta-analysis research by Gould et al. (2003), covering 23 CT and 32 PET studies; and Watson et al. (2007), covering patient data from 1994 to 2002; as well as early studies by Bury et al. (1996) and Phelps (2000) further confirmed PET is more sensitive and more specific than conventional diagnostic imaging for metastatic disease and local recurrence of cancers respectively.

5. The emergence of PET-CT hybrid scanners in 2000 achieved high-resolution anatomical images accurately co-registered with functional data, and this new technology further increases the sensitivity and specificity of cancer imaging with PET modality (Townsend, 2008).

Based on the five major pieces of evidence stated above, it can be shown that there is a clear clinical advantage of PET and PET-CT in the detection of cancer and monitoring of cancer patients compared to conventional diagnostic imaging modalities.

## Research Question 2

In order to answer the second research question, information was summarized about the unique medical environment in Hong Kong affecting PET utilization development.

Influenced by a locally profound cancer type, liver cancer, which is one of the top three causes of cancer death in Hong Kong and many Asian countries, including China, Taiwan, Singapore, and Japan (Ho et al., 2007), it is known that  $^{18}\text{F}$ -FDG PET has a 40-50% false negative rate in the detection of liver cancer at that time (Chen et al., 2004; Ho et al., 2003). In order to resolve this issue, the pioneer PET facility in Hong Kong (HKSH) determined to tackle this weakness of liver cancer detection by PET. After several years of extensive clinical trials (Chen et al., 2003; Chen et al., 2004; Chen et al., 2006; Ho et al., 2003), a summary research result of the dual-tracer imaging protocol of  $^{11}\text{C}$ -Acetate and  $^{18}\text{F}$ -FDG PET published by Ho et al. (2007) became a well-recognized imaging protocol by the molecular imaging community worldwide. Indeed, it was highlighted as the cover article for the 2007 issue of the *Journal of Nuclear Medicine*. As the result of this proven protocol which eliminated a blind spot in the cancer detection of PET, and with the collaboration with the largest liver cancer treatment center in the region — The Department of Surgery at Hong Kong University, as well as oncology specialists, HKSH is able to capture this clinical expertise and

establish as well as promote itself with a medical reputation in a regionally profound disease (liver cancer) and accommodate local patients as well as patients from abroad. Encouraged by the proven clinical experience of PET and PET-CT in the detection and monitoring of cancer patients compared to conventional diagnostic imaging modalities both locally (HKSH) and overseas, private entities followed through and entered into the field of PET imaging. Today, there are eight PET-CT scanners which are privately owned out of the total of 12 PET-CT scanners in Hong Kong (Radiation Board, Appendix A).

Therefore, the medical advancement of liver cancer treatment and detection sped up the PET development in Hong Kong, which in turn answered the second research question.

### **Research Question 3**

To summarize the findings about the socioeconomic environment in Hong Kong, which affect PET utilization development, the following are the key findings.

1. The direct payment culture means patients pay their medical expenses out of their own pocket most of the time. By eliminating the reimbursement burden and the middle layer of insurance cost, PET centers in Hong Kong are able to operate in a more cost-effective and economically efficient way than their counterparts in Europe and the United States.

2. There has been an influx of patients. For many years, Hong Kong has been a medical center for overseas Chinese because of its heritage link and high medical standards (Hokari, 1996). Since the signing of the Mainland and Hong Kong Closer



Economic Partnership Arrangement in 2003, people from China can travel to Hong Kong with fewer restrictions (CEPA, 2003).

One of the obvious examples of this influx is the reverse trend of birth rate in Hong Kong. According to the Hong Kong Department of Health (2010), the birth rate has decreased from 16.8 per 1,000 population in 1981 to 7.1 in 2002, but then rebounded significantly to 12.5 in 2010. This birth rate figure indicates that approximately 50% of the newborn babies in Hong Kong currently are coming from Mainland China (Hospital Authority, 2010).

Another source of the patient influx is the expatriates from foreign companies. According to Yang (2010), China approved a total of 632,298 foreign-funded enterprises between 1980 and 2007. When those expatriates seek medical services, they will go to Hong Kong simply because they have confidence in physicians with US government recognized qualifications to practice in the specialties and those doctors are sufficiently competent in the English language to provide services to English-speaking clients (US Consulate Hong Kong, 2011).

Although there are no official or direct statistics showing how many Mainland China patients and expatriates seek medical services in Hong Kong annually, given the population of 1.3 billion in China (World Bank), and the example of the reversed birth rate, a very small fraction of an influx from China will show a tremendous impact in the medical system in Hong Kong.

Therefore, the third research question of the socioeconomic environment in Hong Kong and its effect on PET utilization development is answered by two things: the direct payment culture and the influx of patients. The direct payment culture enables

the PET centers to operate in a more cost-effective and economically efficient way, and the influx of patients from Mainland China and other overseas Chinese as well as expatriates provides extra sources of financial support to the viability of PET facilities.

### **Summary of Findings**

As mentioned in previous paragraphs, the key factors that have contributed to a higher ratio of PET-CT scanners in Hong Kong are the following:

- 1) medical expertise in a regionally profound disease
- 2) the direct payment culture which enables an economically efficient and a cost-effective operation
- 3) the influx of patients from neighboring countries
- 4) the reputation of its medical services

For factor #1 — establishing a medical expertise in a regionally profound disease, the purpose of this is to build a reputation and can be achieved in at least two ways.

First, if there is a regionally profound disease readily presented in the developing country in which the PET technology can be utilized to address this disease, then this country can directly apply the same PET utilization development model as Hong Kong. That country could establish itself as an “X” disease center similar to the liver cancer center in Hong Kong.

Second, another approach that can be applied is to become a leading medical expertise in the region such as the successful case of the heart center of the Escorts

Heart Institute and Research Center in Delhi and Faridabad of India, as mentioned in Chapter 4.

For factor #2 — the direct payment method which enables a cost-effective operation. The direct payment method can be readily applied to other developing countries if those countries wish to do so in order to boost an economically efficient and a cost-effective operation.

For factor #3 — the influx of patients from neighboring countries. The goal is to create an influx of paying patients from other countries to supplement the local medical demand.

For factor #4 — the buildup of a reputation of medical services. As factors #1 and # 4 can be closely related and complementary to each other, the main goal of building up a reputation is the same, which is to attract an influx of paying patients who can help pay for the advanced medical equipment and diagnostic methods otherwise unaffordable and possibly unavailable to its local citizens.

Based on the above demonstrations, all four factors of the PET development experience in Hong Kong are applicable to other developing countries. The difference is the time required to implement those policies. For factor #2 of direct payment method, the transition can be done in a short period of time to reach the level of cost efficiency. Nevertheless, factors #1, #3 and #4 may take up to 10 years to achieve the desired effects of building up a medical expertise, attracting a significant patient influx, and establishing a reputation for medical tourism.

## Conclusions

According to the findings in Chapter 4, the cost figures in Table 6 (page 43) show that the average cost level is about 13.4% for India (the arithmetic mean of 5.6% and 21.2%), 17.1% for Thailand (the arithmetic mean of 6.3% and 27.9%), and 20.2% for Singapore (the arithmetic mean of 7.8% and 32.5%), compared to the cost in the U.S. In a similar manner, the result from this study also showed that cost effectiveness is the most significant factor which has enabled Hong Kong, a developing region with about half the economic strength of Germany, to sustain a higher ratio of PET-CT scanners. Buoyed by this direct payment culture which has the equivalence of 100% reimbursement rate and the elimination of the entire middle layer of insurance cost, billing coding hurdles, and reimbursement burden as well as bad debt, PET centers in Hong Kong are able to operate in a more cost-effective and economically efficient way than their counterparts in Europe and the United States. In addition, the reputation of a medical expertise in a regionally profound disease—liver cancer, the influx of patients from Mainland China, overseas Chinese as well as expatriates, and the international accredited status of its medical services also play their complementary roles in contributing to the higher ratio of PET technology.

In *The World Is Flat*, author Friedman (2005) suggested that most of us have no idea of the breadth of economic globalization as it exists today. While people think of globalization in terms of manufacturing and some segments of service industries, a surprise movement in outsourcing is medical service.

Applying the same direct payment method, developing countries with a low cost environment are able to set up and operate a PET facility with a much smaller overhead

than their counterparts in the U.S. or Germany, making the latest medical technology assessable to their citizens, which will have a noteworthy health benefit to their countries.

### **Recommendations**

Based on the findings of this study, the majority of PET service providers in Hong Kong are from the private sector and they outnumber those in the public sector by a two to one ratio. The following recommendations are offered in two directions. The first set of recommendations is for the implementation of PET technology in developing countries; and the second set of recommendations is for researchers who want to adopt a quantitative approach to this topic in the future.

#### **Recommendations for the Implementation of PET Technology in Developing Countries**

1. The implementation of advanced PET technology in developing countries should be led by the private sector because private organizations are more efficient in terms of maximizing the cost effectiveness and flexibilities in a competitive marketplace compared to public organizations. This will increase the successful chance of achieving a financially self-sustainable PET facility.

2. Contributions from both public resources and philanthropic foundations should be sought to pay for the initial setup cost associated with a new PET facility because the financial burden is the major hurdle preventing the utilization of this advanced technology. Forms of contribution can include pieces of land, building materials,

interior furnishings, medical equipment, direct monetary funding, etc. This will greatly reduce the debt level and improve the viability of the new facility.

### **Recommendations for Researchers**

Private PET centers in Hong Kong are more or less competitors among themselves in the market of medical services. Sensitive patient and operational data such as patient demographics which will enable a quantitative analysis to study the financial impact of the influx of patients are guarded as business secrets. The following recommendations are offered to researchers who want to adopt a quantitative approach to this topic in the future.

1. Spend more time convincing the practitioners of these private PET facilities that the confidentiality of their patient and operational data will be maintained.
2. Ask permission to collect patient data on site without the expenses of additional resources from these private facilities.
3. Seek approval from the public hospitals to conduct patient data survey to complete the whole picture of PET Services in Hong Kong.
4. Keep in mind the sensitivity and the feelings of patients and their relatives while collecting demographic data because cancer is a devastating disease to most of the people.

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## APPENDICES

Appendix A  
Radiation Board Correspondences

Email dated October 16, 2011.

Dear Steve,

Thank you very much for your message dated 11 Oct 2011 below.

I would like to provide the information as follows:

1. How many PET scanners are operational in Hong Kong in year 2011? According to our licensing records, there are currently 11 PET scanners in HK.
2. How many of those PET scanners are from private sector? 8 of them are from private sector.
3. When was the established year of operation of the first three PET centers in Hong Kong? The first 3 PET centres were established in 1998, 2001 and 2003.
4. When was the established year of operation of the first PET center in public hospital (QMH)? 2003 (QEH)

Thank you very much for your attention.

Best regards  
Joseph Mok  
Radiation Board

Email dated October 18, 2011.

Dear Steve,

Yes, we have not include the PYNEH as the centre is not commenced operation.

For Q3, your sequence is correct but I have to correct that the year should be 1998, 2001, 2002.

Thank you very much for your attention.

Best regards  
Joseph

Steve Sitt <stevesitt@siu.edu>  
17/10/2011 23:53

To: p3\_rhu@dh.gov.hk  
cc:  
Subject: Re: Fw: PET Survey Request

Good morning Joseph,  
What a pleasant surprise to receive a response from you! Thank you very much for your detailed information. Please thank Dr. Cheng for giving permission to use these data and let you, one of the most experienced and resourceful persons from the Radiation Board of the Department of Health in Hong Kong, handle this case.

For question #1, apart from the existing operations, there were two private PET centers ran out of business during the last few years, one located in Causeway Bay (Hercules) and another in Central. Those business events made the number of total scanners fluctuate in the last 10 years. Therefore, these data needs to be updated often.

The following demographic data shows a total of 12 PET scanners because I counted the one under installation at PYNEH. Is this the source of our total number discrepancy? Please advice.

NT:  
PWH 1 PET-CT  
Union 1 PET-CT

Kowloon:

Baptist 1 PET-CT  
St Teresa 1 PET-CT  
Evangel 1 PET-CT  
QEH 1 PET-CT  
油麻地 1PET-CT (HK Healthcheck Company Limited)

HK:  
HKSH 2 PET-CT  
Adventist 1 PET-CT  
QMH 1 PET-CT  
PYNEH 1 PET-CT (under installation)

For question #3, the order of the 1st, 2nd, and 3rd PET center is HKSH, St Teresa and HK Adventist. Please confirm the validity of my sequence.

Thank you very much for your attention and have a good day.

Steve

## Appendix B

### Medical Claim Forms from Major Insurance Providers in Hong Kong

(In alphabetical order)

American International Assurance Company (Bermuda) Limited

Bank of China Group Insurance Company Limited

Bupa

CIGNA Worldwide Life Insurance Company Limited

HSBC Insurance

Hong Leong Insurance (Asia) Ltd.

ING General Insurance International

Manulife Individual Insurance

Sompo Japan Insurance (Hong Kong) Co., Ltd.

## American International Assurance Company (Bermuda) Limited



**American International Assurance  
Company (Bermuda) Limited**  
(Incorporated in Bermuda  
with limited liability)

**INDIVIDUAL HOSPITALIZATION CLAIM FORM 住院賠償申請書****PART I (TO BE COMPLETED BY INSURED/CLAIMANT) 第一部份 (由受保人或申請人填寫)**

This form is generated via the telephone enquiry system "AIA Enquiry Express" / "EasyTouch" or "AIA Corporate Website" and is applicable to relevant applications.  
此表格乃透過電話系統"友邦查詢快線"/"友邦一線通查詢快線"或"AIA企業網站"編印, 並適用於有關申請。

Policy Number 保單號碼 (This policy number will be treated as the reference number for the issues related to this claim. 此保單號碼會被用作有關是次索償事項之參考號碼。)	
Name of Insured 受保人姓名	I. D. Card/Passport Number 身分證/護照號碼
Agent/Broker's Name 營業員/經紀姓名 Agent/Broker's Tel. No. 營業員/經紀聯絡電話	Agent/Broker Code 營業員/經紀號碼 Agency/Broker Name/Area Code 營業員/經紀組別/區域編號
Correspondence Address 通訊地址	
Contact Phone No. 聯絡電話	
Benefits to Claim 索償類別 <input type="checkbox"/> HS/IMP <input type="checkbox"/> HB / HI <input type="checkbox"/> Maternity Benefit <input type="checkbox"/> AI/VI <input type="checkbox"/> PA <input type="checkbox"/> VGA <input type="checkbox"/> Group PA	
This case is a 本個案為:	
<input type="checkbox"/> New Claim 首次索償 <input type="checkbox"/> Further Claim 再度索償 <input type="checkbox"/> Pending Claim 待決賠償 <input type="checkbox"/> Review/Appeal 重批/覆核	
Are you making any other insurance or compensation claim as a result of this treatment? 有關是次治療, 閣下有否向其他保險公司/機構申請賠償? <input type="checkbox"/> No 沒有 <input type="checkbox"/> Yes 有 If yes, please provide the below information. 如有, 請提供下列資料。 Name of insurance company/organization: 保險公司/機構名稱: Policy No./Membership No.: 保單/會員編號:	
<b>PLEASE COMPLETE QUESTIONS 1 TO 5 AND 8 TO 11 IF HOSPITALIZATION WAS DUE TO ACCIDENT</b> 因意外受傷入院請填寫問題1至5及8至11 1. Date and time of accident 意外日期及時間 MM月 / DD日 / YYYY年 HR時 MIN分 <input type="checkbox"/> A.M. 上午 <input type="checkbox"/> P.M. 下午 2. Where and how did it happen 意外地點及經過 3. Part of body injured and type of injury 受傷部位及傷勢 4. Present occupation (if more than one, state all) and exact nature of occupational duties 現職 (若有兼職請列明) 職位及職責 5. Name and address of business or employer 公司或僱主名稱及地址	
<b>PLEASE COMPLETE QUESTIONS 6 TO 11 IF HOSPITALIZATION WAS DUE TO ILLNESS</b> 因病入院請填寫問題6至11 6. Give a brief description of symptoms 描述病徵及病狀 7. How long have these symptoms existed prior to the first consultation? 該等病徵在首次求診前已存在多久? 8. Give details of consultations 診治詳情 (a) The doctor first consulted for this illness 首次就診的醫生資料 Date 求診日期 MM月 / DD日 / YYYY年 Name and address of doctor/ hospital 醫生/醫院名稱及地址	
(b) The doctor who referred the insured to hospital/other doctors seen for this or similar past condition 建議入院的醫生資料/其他曾診治此病或過往同類病況的醫生資料 Name and address of doctor/hospital 醫生/醫院名稱及地址 Date 求診日期 9. (a) Please give the date of admission and the date of discharge. 請提供入院及出院日期。 Date of Admission 入院日期 MM月 / DD日 / YYYY年 Date of Discharge 出院日期 MM月 / DD日 / YYYY年 (b) Have you taken any home leave during the hospital confinement? 您有否於住院期間請假外出? <input type="checkbox"/> No 沒有 <input type="checkbox"/> Yes 有 If Yes, please state the date and time of your home leave. 如有, 請列明外出之日期及時間。 10. Any relationship between the Registered Medical Practitioner/ Medical Services Provider and Insured / Claimant / Agent / Broker? If so, please state the relationship. 若就診之註冊醫生/醫療服務提供者與受保人/索償人/保險營業員/保險經紀有任何關係, 請列明之: 11. Other information 其它資料	

[illegible]

I/We DECLARE that the answers given above are true and complete and I/we have already paid in full to the attending physicians for the medical expenses specified on the receipts which I/We enclose now submitted to American International Assurance Company, Limited/American International Assurance Co. (Domestic) Limited (hereinafter

本人/我們現聲明以上每一項答案為完全和真實及確認是次向美國友邦保險有限公司/美國友邦保險（百慕達）有限公司（以下簡稱“友邦保險”，視何者適合而定）遞交之單據乃由本人/我們之醫生發出，單據所載之醫療費用經已全數繳付。

[illegible]

a. any organization, institution, or individual that has any record or knowledge of my/our/the Insured's employment, sick leave records, accident or loss details (of any sorts), health, medical history or any treatment or advice, that when requested by an authorized representative of AIA/NAAB may disclose any such information. This authorization shall bind my/our/the Insured's successors and assigns and remain valid notwithstanding my/our/the Insured's death or incapacity in so far as legally possible. A photocopy of this authorization shall be as valid as the original.

a. 任何知悉或擁有本人/我們/被保人之工作、病歷記錄、意外或損失(任何類別)之詳情、健康狀況、病歷或任何治療或診斷記錄及曾或將為本人/我們/被保人診治之機構、組織或人士，向友邦保險透露有關資料，不得留難，即使本人/我們/被保人死亡或喪失能力，此授權書仍然存有法律效力，而本人/我們/被保人之繼承人及轉讓人亦會受此授權書約束。此授權書之正本與副本同樣有效。

b. 友邦保險或任何其認可之代理人或代理人，替本人/我們/被保人進行所需之醫療評估及測試，並對本人/我們/被保人之健康狀況進行審核及評估，作為處理本申請及與彼之有關的賠償事宜，不得留難。此等化驗會包括，但並不限於，腰圍量及有礙之血脂酶、糖尿病、腎臟功能檢查、愛滋病或感染人類免疫能力缺乏病毒，免疫功能系統失調或藥物、毒品、尼古丁及其他產品之含量等化驗。

☐ Apply for Internet Service "AIA e-Advice" to suppress physical copies of the selected correspondences and view / download the softcopies via AIA Customer Corner for the above policy and any other policy numbers if specified as below, subject to the Terms and Conditions of "AIA e-Advice". 申請「友邦電子通知書」網上服務，提交以上保單及其他下列保單號碼（如有）之停止收取保單通知書並透過友邦客戶專頁閱覽或下載個別通知書，並根據「友邦電子通知書」的條款及條件使用。

\*Email address 電郵地址: \_\_\_\_\_

Other policy number(s) 其他保單號碼: \_\_\_\_\_

(Not applicable to Personal & Accident policies started with policy prefix A/E/P and Personal Lines policies with policy prefix C. 不適用於保單號碼字首為A/E/P之人身意外保險保單及保單號碼字首為C之個人財物保險保單。)

\*For details of the Terms and Conditions of the "AIA e-Advice", please visit AIA Customer Corner [www.aia.com.hk](http://www.aia.com.hk). 有關條款及條件之詳情，請登入 [www.aia.com.hk](http://www.aia.com.hk) 之友邦客戶專區閱

\*Email notification for this claim will only be sent to the email address provided in this form. 是次賠償之傳訊通知書只會電郵至此表格內所列出之電郵地址。

## Hong Kong Dollar 港元

a. I/We understand that any benefits payable under the Policy will be paid in the latest policy currency as shown on the Policy Information Page of the Policy or, if applicable, the appropriate subsequent endorsement. Accordingly, the provision of the option to receive any such benefits in a currency other than the latest policy currency (the "Opted Currency") is solely a service offered by AIA/AIAB at its discretion.

b. I/We understand and agree that should I/we opt for payment of any benefits payable under the Policy in the Opted Currency, I/we will bear the necessary exchange difference, such difference being determined by AIA/AIAB on the basis of AIA/AIAB's internal exchange rates as at the time of the relevant currency conversion.

a. 本人/我們明白向保單受益人支付任何根據保單資料或隨後所發出之掛註(如適用)所產生之最近期保單貨幣以外之貨幣(“選擇貨幣”)作為取回任何此等利益之貨幣只涉及取回保單所提供之服務。

b. 本人/我們明白且同意如本人/我們選擇任何保單下所作出之利益款項以“選擇貨幣”支付,本人/我們同意承擔所需的兌換差額,而該差額是有當從幣兌換時按彼等保單內所載貨幣兌換率計算而定。

a. In order to speed up your claim application, please attach the required claims documents together with this application form. You may check the required documents as stated in this application form, Part III, "Claims Document Checklist."

a. In order to speed up your claim application, please attach the required claims documents together with this application form. You may check the required documents as stated in this application form Part III "Claims Document Checklist".

b. In case you want to claim for other benefits such as critical illness, disability benefits, etc., you have to complete an appropriate claim form of that respective claim type and file it in together with the necessary supporting evidence.

a. 為使能儘速辦理您的索償申請，請將此表格連同有關索償文件一併遞交。有關申請索償所需遞交之文件，請參閱此表格第三部份之“索償文件參考表”。

Signature of Witness  
見證人簽署

Signature of Insured/Claimant  
受保人/申請人簽署

Name \_\_\_\_\_ Name \_\_\_\_\_  
 姓名 \_\_\_\_\_ 姓名 \_\_\_\_\_

Date	I.D. Card/Passport Number	Date
日期	身分證/護照號碼	日期

This declaration and authorization must be signed by the insured. If the insured is a minor, the insured's parent/legal guardian can sign on his/her behalf.  
此聲明及授權書必須由受保人簽署。若受保人為小童，則可由其家長/合法監護人簽署。

Please complete the following information if the signature is not given by the insured. 若簽署者非受保人，請填寫下列資料。

Name of Insured 受保人姓名	Relationship with the Insured 與受保人關係
--------------------------	---

Countersign by Agency Leader 總管署經理簽名	Date 日期
---	------------

營業員經理姓名 \_\_\_\_\_ 日期 \_\_\_\_\_





## Bupa

## Bupa Hospital Claim Form 保柏住院賠償申請表

Only completed original claim form is accepted 只接受已填妥之賠償申請表正本

## PART I – To be Completed by Member 第一部份 由會員填寫

Claim Form No.  
賠償申請表編號

Name of Subscriber / Employer : \_\_\_\_\_

投保人 / 僱主名稱

Name of Employee (for group contract only) : \_\_\_\_\_

僱員姓名 (只適用於團體合約)

Name of Patient (if other than Subscriber/Employee) : \_\_\_\_\_

病人姓名 (如非投保人或僱員)

Day Time Contact Tel No. : \_\_\_\_\_

日間聯絡電話

Date of Hospitalisation / Day Case Surgery : From \_\_\_\_\_ to \_\_\_\_\_

住院 / 日症手術日期

由 DD 日 / MM 月 / YY 年 至 DD 日 / MM 月 / YY 年

Email Address : \_\_\_\_\_

電郵地址

If hospitalisation was due to illness 若因患病而住院

1. Describe the symptoms and abnormalities which led to the hospitalisation  
請列出病人因何不適及有何異常導致是次入院2. Name, address and tel. no of doctor / hospital the patient first consulted for the illness  
初診醫生姓名 / 醫院名稱、地址及電話號碼

3. Date of the first consultation 初診日期

4. When did these symptoms first appear? 病人於何日首次出現上述症狀?

5. Has the patient received any treatment for similar or related illness by other doctor(s) or been admitted to hospital in the past? 病人曾否因同一或有關之病症而向其他醫生求診或入院?

Yes 有 ☐ No 無 ☐ If Yes, please specify 如有, 請詳述

Treatment Date 診治日期

Name and address of the doctor(s) / hospital(s) 醫生姓名 / 醫院名稱及地址

Other information 其他資料

If hospitalisation was due to accident 若因意外而住院

1. When did it happen? 意外發生日期?

Date 日期 \_\_\_\_\_ Time 時間 \_\_\_\_\_

2. Where and how did it happen? 意外發生的地點及經過?

3. Injured area, type and severity of the injury. 受傷部位、類別及傷勢。

4. Did the patient report to the police? 病人有否報警?

Yes ☐ Send us a copy of the police report ☐ No ☐  
有 ☐ 請提交有關檔案副本一份 ☐ 否 ☐5. Was there any concurrent / predisposing illness at the time of the accident?  
意外發生時, 是否有其他已存在之疾病?

6. Other information 其他資料

Did you submit a claim for workmen's compensation? If yes, please specify the result.  
有請是次索償閣下有否申請勞工賠償, 如有, 請詳述結果?Have you ever made or will you make any claim request for compensation from any organisation as a result of this treatment? 就有關治療, 您曾否或將會向任何機構要求賠償? ☐ Yes 有 ☐ No 無

If Yes, please specify the name of the insurance company / organisation : \_\_\_\_\_

如有, 請列明保險公司 / 機構名稱

Policy No. / Membership No. : \_\_\_\_\_

保單或會員編號

Return all original receipts after claim processing 賠償辦妥後需退回所有收據正本 ☐ Yes 是 ☐ No 否

## PART II – To be Completed by Surgeon / Attending Physician 第二部份 由主診醫生填寫

Remarks: Please attach copies of histopathology, endoscopic, diagnostic / laboratory tests report, operating theatre summary 備註：請覆同病理學、內視鏡、診斷性化驗、檢驗報告、手術室摘要副本交回。

Name of Patient 病人姓名：\_\_\_\_\_ HKID Card Number 香港身份證號碼：\_\_\_\_\_

Admission Date 入院日期：\_\_\_\_\_ Discharge Date 出院日期：\_\_\_\_\_

### A. Clinical History 門診病歷

1. Date on which the patient first consulted you for the condition or related illness / injury which led to this hospitalisation / treatment / diagnostic tests?  
病人首次就上述病況或有關疾病或受傷，而導致是次住院 / 治療 / 診斷性化驗之求診日期？

2. What were the patient's chief symptom(s) / complaint(s) for this hospitalisation / treatment / diagnostic tests? 病人是次主要因何徵狀或申訴入院、接受治療或診斷性化驗？

3. How long had the patient been experiencing these symptoms before the first consultation? 在病人首次求診前，該傷病已患有多長時間？

### B. Hospitalisation History 住院病歷

Final diagnosis 病症結果：\_\_\_\_\_ When was it made? 您是何時對病人作出診斷？\_\_\_\_\_

Operation performed 手術名稱：\_\_\_\_\_ Date of Operation 手術日期：\_\_\_\_\_

Surgeon / Assistant Surgeon name 外科醫生 / 助理外科醫生姓名：\_\_\_\_\_

Recommended treatment, diagnostic tests and the reason for the treatment 轉介之治療、診斷性化驗名稱及原因

1. If you have referred other doctor to the patient during the hospitalisation, please provide the following relevant information. 於住院期間，如閣下已將病人轉介往其他醫生，請提供下列有關資料。  
Referred doctor name 醫生姓名 \_\_\_\_\_ Referral reason 轉介原因 \_\_\_\_\_ What treatment the doctor performed 治療名稱 \_\_\_\_\_

2. Brief discharge summary (including onset and duration of sign and symptoms / disease, etiology, types and results of major examination, treatment, complication and follow-up plan).  
出院摘要：(請列出有關疾病及病徵的病發日期、病因、檢驗性質與結果、有關治療、併發症及跟進計劃。)

3. Has the patient taken any home leave during this hospitalisation? 於住院期間，病人有否請假外出？  
No 無 ☐ Yes 有 ☐ Please state the date, time and reason 請列明日期、時間及原因

4. If hospitalisation has been arranged for scans, diagnostic testing or a procedure that is normally carried out as a day case, please explain the reason.  
如此次住院是因為進行診斷掃描、檢驗或一般日症手術，請說明安排病人住院之原因。

### C. Professional Comment 專業意見

1. In your opinion, was the hospitalised illness a recurrent episode or a chronic disease? If so, when would be the first episode?  
就閣下意見，是次病況是否為復發性病況或慢性病症？如是，何時為首次病發日期？

2. Has the patient ever had the same or similar symptom(s) before? 病人以前曾否患有同類病況？  
No 無 ☐ Yes 有 ☐ Please state when and describe details 請說明日期及詳情

3. Was the condition due to or associated with the following (circle the right answers) 上述情況是否因以下問題所致？(請圈出正確答案)  
accidental bodily injury \ the abuse of drugs or alcohol \ AIDS / HIV related illness, venereal disease or sexually transmitted disease \ pregnancy, infertility or sterilisation \ refractive error \ treatment for cosmetic purpose \ mental or nervous disorder \ congenital condition \ hereditary condition \ developmental condition \ self inflicted injury \ general check-up or vaccination \ NONE OF THE ABOVE  
身體意外受傷 \ 濫用藥物或酒精 \ 先天免疫力缺乏症 (愛滋病) / 與人獸免疫力缺陷病毒 (HIV) 、性病或近性接觸傳染之疾病 \ 懷孕、不育或絕育 \ 視力不正常 \ 美容治療 \ 精神或神經病 \ 先天性症狀 \ 遺傳性病 \ 發育異常 \ 自我傷害 \ 一般身體檢查或防疫注射 \ 以上全部不對

4. Had the patient been previously treated or hospitalised for this or any other disorders? If so, please give a brief summary (including onset and duration of sign and symptoms / disease; etiology; type and results of major examination; treatment and follow-up results) 病人過去曾否就此疾病或其他病症而接受診治或入院接受治療？如是者，請說明摘要 (請列出有關病況及病徵的病發及痊愈日期、病因、檢驗性質與結果、有關治療、併發症及跟進計劃。)

Dates 日期 \_\_\_\_\_ Disease / Disorder / Complaint 疾病 / 失調 / 申訴 \_\_\_\_\_ Details of treatment / hospitalisation 治療 / 住院的詳情 \_\_\_\_\_ Name of doctor / hospital 西醫姓名 / 醫院名稱 \_\_\_\_\_

(Please use any separate paper with the doctor's signature on it if more space is needed) 若需另頁填寫，每張紙都須有醫生的簽署作實

### D. Others 其他

1. Are you the patient's usual physician? 閣下是否病人的長期醫生？

i. Yes ☐ No ☐ please fill in question 2 是，請填寫問題 2

ii. No ☐ Does the patient have any other usual/family doctor(s)? If yes, please give us the name(s) and telephone no. \_\_\_\_\_  
不是，病人是否有其他的長期 / 家庭醫生？如是者，請提供姓名及電話號碼

2. Please fill in the date of consultation and the symptoms and complaints of the patient for each consultation 請填寫診治日期及每次診治的病徵及申訴

Consultation date 診治日期 \_\_\_\_\_ Symptoms / Complaints 病徵 / 申訴 \_\_\_\_\_ Recommended tests / treatment 已轉介的檢查或治療 \_\_\_\_\_

3. If you are referred by other doctor, please provide the doctor name, contact number and address. 如閣下乃其他醫生轉介，請提供該醫生的姓名、聯絡電話及地址。

## Surgeon / Attending Physician's particulars 主診醫生資料

Name of Doctor 醫生姓名：\_\_\_\_\_ Telephone 電話：\_\_\_\_\_ Email Address 電郵地址：\_\_\_\_\_

Address 地址：\_\_\_\_\_

Signature and Chop of Surgeon / Attending Physician  
主診醫生簽署及蓋章

X

Date: 日期

Authorised Signature and Chop of Hospital  
醫院授權簽署及蓋章

X

Date: 日期

## CIGNA Worldwide Life Insurance Company Limited

## Hospitalization/Medical Expense Claim Form

## 住院／醫療費用索償表格



CIGNA Worldwide Life Insurance Company Limited  
CIGNA Worldwide General Insurance Company Limited

25/F, Sunning Plaza, 10 Hysan Avenue,  
Causeway Bay, Hong Kong.

Tel: 2560 1990 Fax: 2560 3605 www.cigna.com.hk

第一部份 - 請由受保人填寫。如受保人未滿18歲，則由保單持有人填寫 (請連同住院／醫療費用單據一併寄回)

Part I - To be completed by insured or policyholder if insured is below 18 years old (Please attach hospital / medical expense receipts with this form)

☐ 首次索償 ☐ 持續索償

First claim Further claim

<b>個人資料 Personal Particulars</b>		Ref: _____ (for office use)	
保單持有人姓名 Name of Policyholder	英文 _____ 中文 _____	保單編號 Policy No.	_____
受保人姓名 Name of Insured	英文 _____ 中文 _____		
受保人香港身份證號碼 HK Identity Card No. of Insured	_____	年齡 Age	_____
		性別 Sex	男 <input type="checkbox"/> 女 <input type="checkbox"/>
通訊地址 Correspondence Address	_____		
	E-mail Address _____		
若上述通訊地址亦同時用作日後保單通訊之用，請在下列表格「✓」，若否，上述通訊地址只作是次索償通訊之用。 If policy and all future correspondence use the listed correspondence address, please 'tick' the below box. Otherwise, all claims correspondences, including claim payment, are mailed to the listed correspondence address.			
<input type="checkbox"/> 是，請用上列通訊地址 Yes, please use the listed correspondence address			
現任僱主名稱 Name of Current Employer	_____		受僱職位 Position Held _____
現任僱主地址 Address of Current Employer	_____		公司電話 Tel No. _____
<b>醫療資料 Treatments Details</b>			
請註明索償類別是因病／意外而導致的住院／醫療費用及提供有關資料。(註：若屬下是次索償的疾病或意外曾於門診及入院，請填寫門診及入院資料) Please specify claim type is Hospitalization/Medical Expense due to illness/accident and provide the relevant information: (Note: Please fill in both Hospitalization and Clinical Consultation Section if you have been admitted and visited clinic for the claiming disorder.)			
醫院名稱／提供醫療服務者機構名稱 Name of Hospital / Medical Provider	_____		
治療日期 Treatment Period	由 _____	至 _____	
治療原因，請註明： Reason of Treatment. Please tick as appropriate:			
<input type="checkbox"/> 由疾病所致，並請描述所患之病症： Due to an illness, please indicate the diagnosis: _____			
上述疾病之徵狀始自何時？ When were you aware of the manifestation of such symptoms? _____			
<input type="checkbox"/> 在住院期間，病人有否請假外出？ During hospitalization period, did the patient have any home leave period? <input type="checkbox"/> NO <input type="checkbox"/> YES, the home leave period is from _____ to _____ Reason is _____			
<input type="checkbox"/> 因意外受傷所致，請描述意外詳情： Due to an accident, please state particulars of the accident: Date _____ Time _____ Place of the accident happened _____			
意外怎樣發生？ How was it happened? _____			
上述意外有否交由警方調查？如有，請列明所報警之警署地點、報案編號及提交路口供紙副本。 Was the accident reported to the Police? If so, please state name and address of the Police Station to which the accident was reported, the case reference no. and provide a copy of the police statement.			
<b>門診診斷資料 Details of Clinical Consultation</b>			
1. 首次求診日期 Date of the first consultation: _____ (YY / MM / DD)			
2. 是次主訴原因 What was the complaint / symptom at the first consultation? _____			
3. 其後因是次主訴之復診／再診之日期 Subsequent consultation/s date(s) of the complaint(s) OR symptom(s) in Q2. _____			
過往求診資料，請註明： Previous Consultation History:			
1. 請列出曾求診治療上述病症之醫生名稱： Name of doctors consulted for the above illness / accident during the past year: _____		初診日期 Date of First Consultation _____	
2. 請列出過去曾求診之醫生名稱及地址： Please list name and address of your usual consultant: _____			
<b>其他資料 Others</b>			
請問除本公司外，有否投保於其他保險公司？如有，請述： Do you have other insurance coverage? If so, please state:			
保險公司名稱 Name of Insurer	投保種類 Type of Coverage	保單編號 Policy Number	保單生效日期 Policy Effective Date
_____	_____	_____	_____
<b>聲明及授權 Declaration &amp; Authorization</b>			
(請由受保人簽署，如受保人未滿18歲，則由保單持有人簽署 To be signed by insured. If insured is below 18 years old, please sign by Policyholder)			
本人謹此聲明上述一切陳述，不論是否本人親手所寫，均屬正確無訛，並為我所知所信之全部。本人同意(1)任何蓄意欺騙或隱瞞將構成法律責任並導致保單失效(2)任何持有有關於本人或上述受保人記錄或資料之醫生、醫院、藥劑師、保險公司、醫署、僱主，或其他機構發給有本人或上述受保人之病歷、病情預後、治療、驗血、或在職、離職詳情、或在其他保險下可獲之保險額、索償金等資料予信託環球保險公司或其代表及授權公司(或其代表)，而在香港私隱條例所訂之情況下，本人並同意將個人資料給予其他在港或以外之機構，而此授權書之副本亦如正本一樣具有同等效力。 I hereby declare of the statements to all questions above, whether or not written by my own hand are to the best of my knowledge and belief complete and true. I agree that any concealment or misstatement as regards to amount or otherwise, in connection with this claim may result in prosecution and the policy shall become void. I hereby authorize any physician, hospital, pharmacy, insurance company, police station, employer, or other organization, who has records or knowledge of myself or the insured, to release all information regarding medical history, prognosis treatment (including drug and alcohol abuse information), sick leave history, employment history, reason of employment termination, earnings or benefits payable under other insurance coverage to CIGNA Worldwide Life Insurance Company Limited and CIGNA Worldwide General Insurance Company Limited or its representative and permit said company (or its representative). In accordance with the provisions of the Personal Data (Privacy) Ordinance of Hong Kong by signing below, I consent that the personal information collected or held by the Company, whether contained in this application or otherwise obtained, is provided and may be disclosed to individuals or organizations within or outside Hong Kong. A photostatic copy of this Declaration & Authorization shall be as valid as the original.			
受保人／保單持有人簽署 (如受保人未滿18歲) Signature of Insured / Policyholder (if insured is below 18 years old)		簽署日期 Date Signed _____	
受保人／保單持有人姓名 (請以正楷書寫) Name of Insured / Policyholder (in block)		受保人／保單持有人香港身份證號碼 HK Identity Card No. of Insured / Policyholder _____	

第二部份 — 主診醫生報告 (此欄須由受保人在住院期間之主診醫生填寫，而費用須由受保人負責)  
Part II - Attending Physician Statement (To be completed by the insured's attending doctor at the insured's cost)

病人姓名 Full name of Patient _____	香港身份證號碼 HK Identity Card No. _____	年齡 Age _____	性別 Sex _____
------------------------------------	---------------------------------------	-----------------	-----------------

**醫療資料 Treatments Details**

診斷日期 由 \_\_\_\_\_ 至 \_\_\_\_\_  
Treatment Period from \_\_\_\_\_ to \_\_\_\_\_

1. 病況診斷  
Diagnosis of conditions  
\_\_\_\_\_

2. 上述診斷期間曾接受之檢查、治療手術項目及結果：  
Investigations, treatment, therapy, surgical procedures done and result during the above mentioned treatment period:  
\_\_\_\_\_

**有關上述病況之資料 History of Consultation**

1. 在是次求診日期前，病人有否在有關病況之診所診治有關上述病況之紀錄？如有，病人始自何時求診？  
Prior to this consultation, did patient first consult you for the related signs and symptoms? And when was the first consultation?  
☐ 否 NO ☐ 有，第一次求診日期始自 \_\_\_\_\_ YES, the first consultation was since \_\_\_\_\_

2. 病人在第一次求診之主要病徵為何？  
What sign(s) and symptom(s) was/were the patient aware of at the first consultation?  
\_\_\_\_\_

3. 如上述之徵狀是由意外所導致。  
If the sign(s) and symptom(s) mentioned above were caused by an accident,  
i) 意外發生日期、時間、地點。  
Accident Date \_\_\_\_\_ (YY/MM/DD) Time \_\_\_\_\_ Place of the accident happened \_\_\_\_\_  
ii) 請詳述意外是如何發生。  
Please give the circumstances of the accident in details.  
\_\_\_\_\_  
iii) 請問傷者在首次求診時，受傷部位有否可見明顯外傷？  
Any external visible signs of bodily injury were revealed at the 1st consultation? Please give details.  
\_\_\_\_\_  
iv) 請問傷者在首次求診時，傷者之受傷部位表面有否可見之瘀傷、傷口或擦傷？  
Any evidence of external bruise, wound or abrasion was revealed at the 1st consultation?  
\_\_\_\_\_

4. 又據病人自述，上述病徵在求診前出現多久？  
According to the patient, for how long had such symptom(s) persisted before the first consultation?  
在第一次求診時，病徵已持續了 \_\_\_\_\_ 日 \_\_\_\_\_ 月 \_\_\_\_\_ 年  
Prior to the first consultation, such symptom(s) had persisted for \_\_\_\_\_ day(s) \_\_\_\_\_ month(s) \_\_\_\_\_ year(s)

5. 病人是否由另一位醫生轉介來作進一步治療？如是，請列出姓名：  
Was the patient referred to you by another doctor for further management? If so, please state name of referral doctor:  
☐ 否 NO ☐ 是，該醫生為 \_\_\_\_\_ YES, the name of referral doctor is \_\_\_\_\_

6. 就上述病況，病人有否住院？  
Was hospitalization required?  
☐ 是 YES 住院日期 由 \_\_\_\_\_ 至 \_\_\_\_\_ Hospitalization Period is from \_\_\_\_\_ to \_\_\_\_\_  
☐ 否 NO 病人不需要住院接受治療 The patient does not require to stay at hospital for treatment

7. 在住院期間，病人有否請假外出？  
During hospitalization period, did the patient have any home leave period? ☐ 否 NO ☐ 有，請假外出期由 \_\_\_\_\_ 至 \_\_\_\_\_ 原因是 \_\_\_\_\_ YES, the home leave period is from \_\_\_\_\_ to \_\_\_\_\_ Reason is \_\_\_\_\_

8. 請指出上述病況是否與下列情況有關：  
Please indicate if the medical condition and its subsequent treatment are associated with the followings:

<p>是 否 先天性不正當情況、不育或絕育情況 YES / NO Congenital anomalies, infertility or sterilization</p> <p>是 否 受酒精或藥物影響 YES / NO Under the influence of drugs or alcohol</p> <p>是 否 不論在神智清醒與否下之自我損傷或自殺行為 YES / NO Self-inflicted injuries or suicidal attempt while sane or insane</p> <p>是 否 懷孕或由此引發之病況 YES / NO Pregnancy conditions or any related complications</p>	<p>是 否 牙科治療、身體檢查 YES / NO Dental care, General check up</p> <p>是 否 休養、復康或延續護理 YES / NO Rest cure, rehabilitation, convalescence or extended care</p> <p>是 否 精神科 YES / NO Psychiatric problems</p> <p>是 否 整形外科手術 YES / NO Cosmetic / Plastic Surgery</p>
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醫生簽署  
Signature of Physician \_\_\_\_\_

醫院/醫生蓋印  
Hospital / Physician Stamp \_\_\_\_\_

醫生地址  
Physician Name in Block \_\_\_\_\_

簽署日期  
Date Signed \_\_\_\_\_

診所地址  
Clinic Address of Physician \_\_\_\_\_



## HSBC Insurance



HSBC Insurance  
滙豐保險

Claim Form  
索償書

HospitalSurance  
住院萬全保

Policy No.: \_\_\_\_\_ Claim No.: \_\_\_\_\_  
保單編號: \_\_\_\_\_ 索償編號: \_\_\_\_\_ (For office use only 供本公司填寫之用)

In the event that you or your family members are hospitalised while insured under the HospitalSurance plan, simply fill out this Claim Form and return it to HSBC Insurance (Asia) Limited within 60 days from the commencement of such confinement.  
To ensure fast payment of your claim, check that you have filled out and signed all sections, and that you have attached all the original necessary supporting documents.

當閣下或受保之家人在本保險承保範圍內，因意外或疾病而導致住院，祇需填妥此索償書，寄回滙豐保險（亞洲）有限公司。

注意：索償書連同有關所有證明文件之正本必須在入院日期後60天內呈交給本公司。

祇要閣下清楚填寫及簽署下列各項，並附上所有有關證明文件之正本，閣下的索償申請將會儘速處理。

SECTION A

Insured Information 投保資料

- Name of Insured: 投保人姓名: \_\_\_\_\_  
(English, please 請以英文正楷填寫)
- Usual Address: 住址: \_\_\_\_\_ Res. or Office Tel. No.: \_\_\_\_\_  
(English, please 請以英文正楷填寫) 住宅或辦公室電話: \_\_\_\_\_
- Address for correspondence regarding this claim (if different from above): 通訊地址 (若與上述地址不同): \_\_\_\_\_  
(English, please 請以英文正楷填寫) Tel. No.: \_\_\_\_\_  
電話: \_\_\_\_\_
- HSBC Account No. 滙豐銀行賬戶號碼: \_\_\_\_\_  
Type of Account: 賬戶種類: ☐ Savings 儲蓄賬戶 ☐ Current 來往賬戶 ☐ SuperEase 萬用戶口 ☐ Visa/Master Card 滙豐卡/萬事達卡

SECTION B

Patient Information 病人資料

- Full Name of Insured Patient: 受保病人姓名: \_\_\_\_\_  
If the patient is not the insured, copy of documentary evidence such as marriage certificate, birth certificate etc. showing the relationship with the insured should be submitted together with this form.  
如病人並非投保人，請隨本申請書附上有關證明文件，如結婚證書、出生證明書等，以茲證明病人與投保人之關係。
- Date of Birth: 出生日期: \_\_\_\_\_ DAY 日 / MONTH 月 / YEAR 年 3. Occupation: 職業: \_\_\_\_\_

SECTION C

Claim Information 索償申請資料

- Describe Injury or Sickness: 請述傷勢及病況: \_\_\_\_\_
- If Injury, please detail the circumstances of the accident: 如因意外受傷住院，請將意外發生的詳細情形寫出: \_\_\_\_\_  
\_\_\_\_\_
- Has the patient ever seen a doctor for this or any similar condition in the past? 病人從前有否因同樣或類似情況而就醫?  
☐ Yes 有 ☐ No 否  
If YES, please give dates and names and addresses of doctors and/ or hospitals: 如有，請填寫診症醫生及/或醫院的名稱及地址: \_\_\_\_\_  
\_\_\_\_\_

HSBC Insurance (Asia) Limited

滙豐保險（亞洲）有限公司

18/F, Tower 1, HSBC Centre, 1 Sham Mong Road, Kowloon, Hong Kong  
香港九龍深旺道1號滙豐中心1座18樓

Tel 電話: 2288 6688 Fax 圖文傳真: 3418 4978 FaxSwitch ID: 8835

4. Period of Hospital Confinement for which claim is made: 住院期間:  
 Date of Admission: 入院日期: \_\_\_\_\_ Time: 時間: \_\_\_\_\_  
 DAY 日 / MONTH 月 / YEAR 年  
 Date of Discharge or expected duration of hospitalisation: 離院日期或預料住院期間:  
 \_\_\_\_\_ Time: 時間: \_\_\_\_\_  
 DAY 日 / MONTH 月 / YEAR 年
5. Name of Hospital: 醫院名稱: \_\_\_\_\_  
 Address: 地址: \_\_\_\_\_  
 Country (if outside Hong Kong): 國家 (如在香港以外地區): \_\_\_\_\_
6. If patient to whom this claim relates is or was hospitalised outside Hong Kong, please give the following additional information:  
 如申請此項索償之病人入住香港以外地區之醫院, 請填寫下列資料:  
 a. Patient's usual address: \_\_\_\_\_  
 病人在港住址:  
 b. Purpose of the overseas trip: \_\_\_\_\_ c. Intended itinerary or destination: \_\_\_\_\_  
 前往外地之目的: 預定之行程或目的地:  
 d. Intended duration of the overseas trip: From \_\_\_\_\_ to \_\_\_\_\_  
 計劃在外地停留期間: 由 DAY 日 / MONTH 月 / YEAR 年 至 DAY 日 / MONTH 月 / YEAR 年
7. Patient's Usual Doctor Name: 病人慣常就醫之醫生名稱: \_\_\_\_\_  
 Address: 地址: \_\_\_\_\_  
 Patient Card No.: 掛號號碼: \_\_\_\_\_ Tel. No.: 電話: \_\_\_\_\_
8. If the Insured Person to whom this claim relates is or was at any time during hospitalisation confined to an intensive care unit, please advise the following information: 如申請此項索償之病人入住醫院之深切治療部, 請填寫下列資料:  
 Period in Intensive Care Unit: From \_\_\_\_\_ to \_\_\_\_\_  
 入住深切治療部期間: 由 DAY 日 / MONTH 月 / YEAR 年 至 DAY 日 / MONTH 月 / YEAR 年
9. Any concurrent claim about this hospitalisation with other insurance companies? 有否就此住院同時向其他保險公司提出索償?  
☐ Yes 有 ☐ No 否  
 If Yes, please state the name of the company and the policy number: 如有, 請列明其公司名稱及保單編號: \_\_\_\_\_

#### DECLARATION AND AUTHORISATION 聲明及授權

1. I declare that the above information is true and complete to the best of my knowledge and belief;  
 本人茲聲明上述資料正確無訛及為事實之全部:
2. I hereby authorise on behalf of myself and my dependents, any physician, hospital, clinic, or other organisation to disclose to HSBC Insurance (Asia) Limited or its representative any and all information concerning the disability resulting in the above hospital confinement. A photostatic copy of this authorisation shall be as effective and valid as the original;  
 本人現授權診症醫生、醫院、診所或其他機構將有關上述住院的資料送交滙豐保險(亞洲)有限公司或其代表, 以便進行申請索償。遞交此索償申請書之影印本同樣有效:
3. I hereby request and authorise HSBC Insurance (Asia) Limited to pay benefit due in respect of this claim by cheque to \_\_\_\_\_

or by auto-pay to HSBC Account No. \_\_\_\_\_

under the name of \_\_\_\_\_

本人現申請及授權滙豐保險(亞洲)有限公司將此項賠償款項, 以支票形式支付予 \_\_\_\_\_

或以自動轉賬方式轉入 \_\_\_\_\_ 滙豐銀行賬戶內, 賬戶號碼為 \_\_\_\_\_

Signature of the Insured 投保人簽署 \_\_\_\_\_ Date 日期 \_\_\_\_\_

Signature of the Patient 病人簽署 \_\_\_\_\_ Date 日期 \_\_\_\_\_

**NOTE:** If the insured is claiming on his own behalf or the patient concerned is a child under 18 years of age, only the insured's signature is required.

註: 如投保人為自己或十八歲以下子女申請賠償, 祇需簽署投保人一欄。

## Hong Leong Insurance (Asia) Ltd.



豐隆保險(亞洲)有限公司  
HongLeongInsurance (Asia) Ltd.

**GROUP MEDICAL HOSPITALIZATION & SURGICAL CLAIM FORM 團體保險住院手術賠償申請表**

Please complete this form and attach copy of all diagnostic/test reports, original itemized invoices and receipts within 90 days from the day of discharge/operation.  
請填寫此表格並附上所有診斷和檢驗報告副本及全部賬單和收據正本於住院/手術後 90 天內遞交。

**PART 1 – TO BE COMPLETED BY THE PATIENT 甲部 – 由病人填寫**

Name of Policy Holder 保單持有人名稱:		
Policy No. 保單編號:	Member No. 會員編號:	Name of Member (in full) 會員姓名 (全名):
Name of Patient (in full) 病人姓名 (全名):	H.K.I.D Card No. 香港身份證號碼:	Occupation 職業:
Relationship to the Member 與會員關係:	Date of Birth 出生日期:	Sex 性別: <input type="checkbox"/> Male 男 <input type="checkbox"/> Female 女
(1) Describe the symptoms and anomalies which led to the hospitalization 請列明病者因何不適或有何症狀導致是次入院:		
(2) Have you had any prior consultation / treatment for this or the related condition? If yes, please give details as below: 閣下是否曾經因同一病況而求診 / 接受治療? 如有, 請列出有關資料如下: <input type="checkbox"/> No 沒有 <input type="checkbox"/> Yes 有		
Date of Visit 求診 / 治療日期	Name of Doctor 醫生姓名	Address of Doctor 醫生地址
_____	_____	_____
_____	_____	_____
(3) Name and address of your family / usual doctor 閣下的家庭 / 慣常醫生姓名及地址:		
(4) Was the hospitalization / surgery caused by accident? 此次住院 / 手術是否由於意外事故所引致? <input type="checkbox"/> No 不是 <input type="checkbox"/> Yes 是		
Date, time and place of accident 意外事故發生的日期、時間及地點: _____		
Account of accident 意外事故發生的經過: _____		
Name and address of witness 目擊者的姓名及地址: _____		
(5) Do you have any medical / accident / hospital cash insurance policies with other insurance companies? If yes, please give details as below: 閣下是否有在其他保險公司享有醫療 / 意外 / 住院現金保險保障? 如有, 請列出有關資料如下: <input type="checkbox"/> No 沒有 <input type="checkbox"/> Yes 有		
Name of Insurance Company 保險公司名稱	Policy No. 保單號碼	Effective Date 生效日期
_____	_____	_____
_____	_____	_____
_____	_____	_____
Name of Insured 受保人姓名	_____	
_____	_____	
If yes, please indicate whether return of original receipt(s) is required? 如有, 請列明是否需要退回收據正本? <input type="checkbox"/> No 否 <input type="checkbox"/> Yes 是		
<p><b>DECLARATION &amp; AUTHORIZATION 聲明及授權書:</b></p> <p>I hereby declare that all the information given is true and correct and no relevant information has been omitted. I agree that your Personal Data Policy, a copy of which is available upon request or from www.hl-insurance.com, shall apply. I agree that all my personal data will be subject to such Policy (as may be amended from time to time). I authorize you to provide to and collect information about me (and my dependents if any) in connection with this Claim Form from any other member of the Hong Leong group or any other organization, institution or person relevant to your business, including other insurance companies, credit agencies, financial institutions, healthcare related entities etc., and to compare such information with my personal data, and to use the results for taking of any actions that may be adverse to my interests. I understand that I am entitled to request access to and the correction of my personal data so held by you. Such request shall be made to your Data Protection Officer. A reasonable fee may be charged by you for processing such request.</p> <p>I authorize any hospital, clinic, physician, insurance company, service provider or other person or organization that has any records or knowledge of me or my health, insurance or claim history to furnish to your company or your authorized representative, any and all personal data and other information with respect to any illness or injury, medical history, insurance or claim history, consultation prescriptions or treatment and copies of all hospital, medical or other records concerning me. A photostat copy of this authorization shall be considered as effective and valid as the original. Your issue of this claim form does not signify your acceptance of any claim.</p> <p>本人現聲明上述所填報的資料正確無訛, 並沒有遺漏。 本人同意貴公司之「個人資料政策」會被引用。本人可以向貴公司索取或從網址 www.hl-insurance.com 下載有關政策。本人同意該政策(按不時之修正)適用於本人所有個人資料。本人現授權貴公司向/從任何豐隆集團成員或其他公司、機構、業務有關人士包括保險公司、信貸機構、金融機構、醫療保健相關機構等提供、收集並比較本人(及本人的家屬, 如適用) 於本賠償申請表的個人資料, 並利用比較結果採取任何行動, 其可能不符合本人利益。本人理解本人有權要求查閱及更正貴公司持有有關本人之個人資料。此等查詢應向貴公司之資料保安主任提出。貴公司有權收取處理該查詢的合理費用。 本人茲授權持有本人健康、投保資料、索償記錄或任何有關資料之醫院、診所、醫生、保險公司、提供服務者或其他人士/機構, 可以將部份或全部有關本人之傷患程度、投保資料、索償記錄、求診藥方或治療記錄及所有住院、醫療或其他記錄給予貴公司或其代理人。此授權書之影印本與正本具同等效力。發出此索償申請表並不代表貴公司接受本人之索償。</p>		
Date 日期	Signature (Patient or Parent if a minor) 簽名(倘若如未成年請由父母代簽)	

豐隆保險(亞洲)有限公司 • 香港北角英皇道 510 號港運大廈 8 樓 807-10 室  
Hong Leong Insurance (Asia) Limited • Room 807-10, 8/F, Island Place Tower, 510 King's Road, North Point, Hong Kong  
Tel: (852) 2230 9900 • Fax: (852) 2533 7548 • Website: www.hl-insurance.com

GMHS1010

**PART 2 – TO BE COMPLETED BY THE ATTENDING PHYSICIAN 乙部 – 由主診醫生填寫**

(1) Name of Patient (in full) 病人姓名(全名):	H.K.I.D. Card No. 香港身份證號碼:																								
(2) Name of Hospital 醫院名稱: Date of Admission 入院日期: _____ Date of Discharge 出院日期: _____																									
(3) Chief complaints of the patient relating to this hospitalization / surgery 此次住院 / 手術的主要病因:																									
(4) Diagnostic investigations / procedures performed 診斷性檢驗 / 程序名稱:  Final Diagnosis 診斷結果:																									
(5) Surgical operation performed 手術名稱:  Date of Operation 手術日期:																									
(6) Brief discharge summary including etiology, treatment, prognosis and any complications and / or follow up plan: 出院摘要包括病因、治療法、預後情況、任何併發症與及跟進治療方案:																									
(7) The date on which the signs and symptoms first appeared or the accident occurred 有關症狀首次出現或意外發生的日期:  Please state the signs and symptoms 請詳述有關症狀:																									
(8) The date on which you first attended to the patient for this or the related condition 閣下首次替病人就這或同類病況診治的日期:																									
(9) The date on which the patient first received consultation for this or the related condition 病人首次就這或同類病況求診的日期:																									
(10) Was this condition a recurrent episode or in anyway associated with a similar condition that the patient had before? If yes, please give details as below: 病人之病況是否再次覆發或是與其過往曾患有的問題病況有關連? 如是, 請列出有關資料如下: No 不是 <input type="checkbox"/> Yes 是 <input type="checkbox"/> Date of Onset 首次病發日期      Name of Attending Doctor 主診醫生姓名      Symptoms and Diagnosis 症狀及診斷結果																									
(11) Was the patient's condition caused by or in anyway associated with the conditions mentioned below? 病人之病情是否由下列情況所導致或有關連? <table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">(a) Congenital anomalies or deformities 先天異常</td> <td style="width: 20%;">No 不是 <input type="checkbox"/></td> <td style="width: 20%;">Yes 是 <input type="checkbox"/></td> </tr> <tr> <td>(b) Sterilisation, contraception or treatment relating to birth control 不育、避孕或節育</td> <td>No 不是 <input type="checkbox"/></td> <td>Yes 是 <input type="checkbox"/></td> </tr> <tr> <td>(c) Disorders of the mind, psychotic or neurotic 精神錯亂</td> <td>No 不是 <input type="checkbox"/></td> <td>Yes 是 <input type="checkbox"/></td> </tr> <tr> <td>(d) Rest cure or sanitary care 休養治療或衛生上的照料</td> <td>No 不是 <input type="checkbox"/></td> <td>Yes 是 <input type="checkbox"/></td> </tr> <tr> <td>(e) Drug addiction or alcoholism 酗酒或酗酒</td> <td>No 不是 <input type="checkbox"/></td> <td>Yes 是 <input type="checkbox"/></td> </tr> <tr> <td>(f) Cosmetic treatment or plastic surgery 美容或整容手術</td> <td>No 不是 <input type="checkbox"/></td> <td>Yes 是 <input type="checkbox"/></td> </tr> <tr> <td>(g) Eye refraction or hearing aids 視力或聽力幫助</td> <td>No 不是 <input type="checkbox"/></td> <td>Yes 是 <input type="checkbox"/></td> </tr> <tr> <td>(h) AIDS related, venereal disease or sexually transmitted disease 愛滋病, 性病或由性接觸而傳染的疾病</td> <td>No 不是 <input type="checkbox"/></td> <td>Yes 是 <input type="checkbox"/></td> </tr> </table> If yes, please give details 如是, 請詳述:		(a) Congenital anomalies or deformities 先天異常	No 不是 <input type="checkbox"/>	Yes 是 <input type="checkbox"/>	(b) Sterilisation, contraception or treatment relating to birth control 不育、避孕或節育	No 不是 <input type="checkbox"/>	Yes 是 <input type="checkbox"/>	(c) Disorders of the mind, psychotic or neurotic 精神錯亂	No 不是 <input type="checkbox"/>	Yes 是 <input type="checkbox"/>	(d) Rest cure or sanitary care 休養治療或衛生上的照料	No 不是 <input type="checkbox"/>	Yes 是 <input type="checkbox"/>	(e) Drug addiction or alcoholism 酗酒或酗酒	No 不是 <input type="checkbox"/>	Yes 是 <input type="checkbox"/>	(f) Cosmetic treatment or plastic surgery 美容或整容手術	No 不是 <input type="checkbox"/>	Yes 是 <input type="checkbox"/>	(g) Eye refraction or hearing aids 視力或聽力幫助	No 不是 <input type="checkbox"/>	Yes 是 <input type="checkbox"/>	(h) AIDS related, venereal disease or sexually transmitted disease 愛滋病, 性病或由性接觸而傳染的疾病	No 不是 <input type="checkbox"/>	Yes 是 <input type="checkbox"/>
(a) Congenital anomalies or deformities 先天異常	No 不是 <input type="checkbox"/>	Yes 是 <input type="checkbox"/>																							
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(h) AIDS related, venereal disease or sexually transmitted disease 愛滋病, 性病或由性接觸而傳染的疾病	No 不是 <input type="checkbox"/>	Yes 是 <input type="checkbox"/>																							
(12) Was the patient referred by another doctor? If yes, please give details as below: 病人是否經其他醫生轉介? 如是, 請列出有關資料如下: No 不是 <input type="checkbox"/> Yes 是 <input type="checkbox"/> Date of Referral 轉介日期      Name of Referral Doctor 轉介醫生姓名      Address of Referral Doctor 轉介醫生地址																									
(13) Was the hospitalization medically necessary? If yes, please give reasons as below: 是次入院是否醫療所需? 如是, 請詳述原因如下: No 不是 <input type="checkbox"/> Yes 是 <input type="checkbox"/>																									
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Name of Attending Physician / Specialist (with qualifications) 主診 / 專科醫生的姓名 (資歷)</td> <td style="width: 50%;">Address 地址</td> </tr> <tr> <td>Signature of Attending Physician / Specialist 主診 / 專科醫生簽名</td> <td>Telephone 電話</td> </tr> <tr> <td></td> <td>Date 日期</td> </tr> </table>		Name of Attending Physician / Specialist (with qualifications) 主診 / 專科醫生的姓名 (資歷)	Address 地址	Signature of Attending Physician / Specialist 主診 / 專科醫生簽名	Telephone 電話		Date 日期																		
Name of Attending Physician / Specialist (with qualifications) 主診 / 專科醫生的姓名 (資歷)	Address 地址																								
Signature of Attending Physician / Specialist 主診 / 專科醫生簽名	Telephone 電話																								
	Date 日期																								



## ING General Insurance International



安泰保險

ING General Insurance International

## MEDICAL INSURANCE – HOSPITALISATION &amp; SURGICAL CLAIM FORM

## 醫療保險—住院及手術賠償表

This form is applicable to both inpatient and outpatient surgical claim

本表格適用於住院或門診手術賠償

## PART 1 – TO BE COMPLETED BY THE PATIENT

甲部—由病人填寫

Name of Policy Holder 保單持有人名稱：		
Name of Employee/Member 僱員 / 成員姓名： (For group insurance policy only)	Policy No. 保單號碼：	
Insured No./Certificate No. 保戶編號 / 受保證書編號 (if applicable 倘適用)：		

Name of Patient 病人姓名：		I.D. Card No. 身份證號碼：
Occupation 職業：	Date of Birth 出生日期：	Sex 性別： <input type="checkbox"/> M 男 <input type="checkbox"/> F 女
Relationship to the Policy Holder 與保單持有人關係： <input type="checkbox"/> Self 本人 <input type="checkbox"/> Spouse 配偶 <input type="checkbox"/> Child 子女 <input type="checkbox"/> Staff/Member 僱員 / 成員 <input type="checkbox"/> Dependent 僱員 / 成員家屬		
(1) Have you had any prior treatment for this pr related conditions? 閣下是否曾經因同一病況而接受治療？  NO 沒有 <input type="checkbox"/> YES 有 <input type="checkbox"/> Doctor's Name 醫生姓名： _____ Address 地址： _____  Date(s) 日期： _____		
(2) Are you making any other insurance claim as a result of this hospitalization/surgery? 有關此次住院 / 手術，閣下是否有申請其他保險賠償？  NO 沒有 <input type="checkbox"/> YES 有 <input type="checkbox"/> Name of Insurance Company 保險公司名稱： _____ Policy No. 保單號碼： _____		
(3) Was the hospitalization/surgery a result of an accident? 此次住院 / 手術是否由一宗意外引致？  NO 不是 <input type="checkbox"/> YES 是 <input type="checkbox"/> Date 日期： _____ Time 時間： _____ Place 地點： _____ Brief Description 經過： _____		
<b>DECLARATION &amp; AUTHORIZATION</b> I hereby declare that the above information given is true and correct. I further authorize any hospital, physician, insurance company or organization that has any records or knowledge of me or my health, to furnish to ING General Insurance International or its authorized representative, any and all information with respect to any illness or injury, medical history, consultation prescriptions or treatment and copies of all hospital or medical records. A photostat copy of this authorization shall be considered as effective and valid as the original. 本人現聲明上述所填報的資料正確無訛。 本人茲授權持有本人健康或任何資料之醫院，醫生，保險公司或機構，可以將部份或全部有關本人傷患之病歷、診斷報告及藥方等資料給與安泰保險有限公司或其代理人。此授權書之影印本與正本具同等效力。		
Date 日期	Signature of Patient 病人簽署	

7/F ING Tower,  
308 Des Voeux Road Central, Hong Kong.  
香港中環德輔道中 308 號安泰金融中心 7 樓  
Tel: (852) 2850 3030 Fax: (852) 2850 3031  
Website: www.ing.com.hk

Nationale-Nederlanden Internationale Schadeverzekering N.V.  
also operating under the name of  
**ING General Insurance International**  
(Incorporated in The Netherlands with limited liability)  
安泰保險有限公司

**PART II – TO BE COMPLETED BY THE ATTENDING PHYSICIAN/SURGEON AT THE CLAIMANT'S OWN EXPENSES**

乙部 – 由主診醫生填寫，所需費用由索價人自行承擔

(1) Name of Patient 病人姓名: _____	
(2) Hospitalization 住院:	
Name of hospital 醫院名稱: _____	
Date of Admission 入院日期: _____ Date Discharge 出院日期: _____	
(3) Surgical procedure 手術	
Date of operation 手術日期: _____ Name of the procedure 手術名稱: _____	
Nature 性質: _____	
(4) Chief complaints of the patient relating to this hospitalization/surgery 此次住院/手術的主要病因: _____	
(5) Diagnosis of conditions 診斷: _____	
(6) Brief discharge summary: (including treatments, investigation procedures, results, and/or any complications and follow up plan.) 出院摘要: (治療及以後治療計劃, 包括診查辦法、結果、併發症及跟進計劃)	
(7) Date of the accident occurred or symptom first appeared. 首次出現病徵日期或意外發生日期	
(8) Date of first consultation for this condition or related illness 病人首次求診日期	
(9) To the best of your knowledge, has the patient ever had the same or similar conditions or symptoms relating thereto? 據閣下所知, 病人以前曾否患有同類病況?	
NO 沒有 <input type="checkbox"/> YES 有 <input type="checkbox"/> Please state dates and describe _____	
請說明何時及當時情況 _____	
(10) Is the patient referred by another doctor? 病人是否經其他醫生轉介?	
NO 不是 <input type="checkbox"/> YES 是 <input type="checkbox"/> Name and address of the referral doctor _____	
轉介醫生的姓名和地址 _____	
Name of Attending Physician/Specialist (with qualifications) 主診/專科醫生的姓名(資歷)	
Address 地址	
Telephone 電話	
Signature of Attending Physician Specialist 主診/專科醫生簽名	
Date 日期	

This Claim form is endorsed by the Hong Kong Medical Association and the Medical Insurance Association of the Hong Kong Federation of Insurers.

## Manulife Individual Insurance



**MEDICAL INSURANCE –  
HOSPITALIZATION &  
SURGICAL CLAIM FORM**  
**醫療保險 –  
住院及手術賠償表**

This form is applicable to both inpatient  
and outpatient surgical claim  
本表格適用於住院或門診手術賠償

Branch code 分行編號 \_\_\_\_\_ Location 地點 \_\_\_\_\_  
Advisor code 保險顧問編號 \_\_\_\_\_  
Advisor's name 保險顧問姓名 \_\_\_\_\_  
Contact no. 聯絡電話 \_\_\_\_\_

**PART I – TO BE COMPLETED BY THE PATIENT****第一部份 – 由病人填寫**

For document requirements of this claim, please refer to the Hospital Claims Instructions.  
有關此索償的所需文件，請參考「住院索償指引」。

Name of Policyowner 保單持有人名稱：	
Name of Employee/ Member 僱員/ 成員姓名： (for group insurance policy only 只適用於團體保險保單)	Policy No. 保單編號：
Insured No./ Certificate No. (if applicable) 保戶編號/ 受保證書編號 (如適用)：	

Name of Patient 病人姓名：	HKID/ Passport No. 香港身份證/ 護照號碼： (please attach copy 請附上副本)	
Occupation 職業：	Date of Birth 出生日期： (DD / MM / YYYY 日/月/年)	Sex 性別： <input type="checkbox"/> M 男 <input type="checkbox"/> F 女
Relationship to Policyowner 與保單持有人關係：	<input type="checkbox"/> Self 本人 <input type="checkbox"/> Spouse 配偶 <input type="checkbox"/> Child 子女 <input type="checkbox"/> Staff/ Member 僱員/ 成員 <input type="checkbox"/> Dependent of Staff/ Member 僱員/ 成員家屬	
(1) Have you had any prior treatment for this or related condition(s)? 閣下是否曾經因同一病況而接受治療？ <input type="checkbox"/> NO 否 <input type="checkbox"/> YES 是 Doctor's Name 醫生姓名：_____ Address 地址：_____ Treatment Date 診治日期：_____		
(2) Are you making any other insurance claim as a result of this hospitalization/ surgery? 有關是次住院/ 手術，閣下有否申請其他保險賠償？ <input type="checkbox"/> NO 沒有 <input type="checkbox"/> YES 有 Name of Insurance Company 保險公司名稱：_____ Policy No. 保單編號：_____		
(3) Was the hospitalization/ surgery a result of an accident? 是次住院/ 手術是否由於一宗意外引致？ <input type="checkbox"/> NO 否 <input type="checkbox"/> YES 是 Date 日期：_____ Time 時間：_____ Place 地點：_____ Brief Description 經過：_____		

**Declaration and Authorization 聲明及授權**

I hereby declare that the answers in the above statement are full and true to the best of my knowledge. I further authorize any physician, hospital, insurance company, claims investigation company, government authority, or organization that has any record or knowledge of me, my health or my activities (including records relating to Social Security, Workers' Compensation, credit, financial, earnings and employment history) to furnish such information to Manulife (International) Limited (the "Company") or its authorized representative, and all information with respect to any illness or injury, medical history, consultation, prescription or treatment and copies of all hospital or medical records. A photostatic copy of this authorization shall be as effective and valid as the original.

本人現聲明填報於本表格內之資料已是本人所知之全部並為真實無誤。本人茲授權任何醫生、醫院、保險公司、賠償調查公司、政府有關部門或其他持有本人個人資料、健康狀況或紀錄（包括有關本人所獲之社會福利及勞工賠償、本人之存款、財政狀況、入息及就業紀錄）之組織可以將部份或全部有關本人傷患之病歷、診斷報告、藥方或治療等資料予宏利人壽保險（國際）有限公司（「貴公司」）或其代理人，此授權書之複製本與正本具有同等效力。

All information in this form together with any subsequent alterations or supplements of it are collected to enable the Company to carry on insurance business and may be transferred to and/or used by the Company (including its subsidiaries, affiliated companies and associated companies, regardless of where they are located or registered) and any service providers (regardless of where they are located or registered) for the purpose of adjudicating this insurance or related claims thereof, approving and underwriting the application, administering and reinsuring the policy, marketing or promoting products and services, and/or preventing money laundering and/or terrorist financing activities. Supply of information under this form is a condition precedent to claim for the relevant benefit(s) available under the policy. Any request for access to or correction of the personal data under this form should be made by writing to the Company's Home Office (at Individual Financial Products, Manulife (International) Limited, 22/F., Manulife Financial Centre, 223-231 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong). The personal data of this form may be transferred to any relevant regulatory bodies to enable them to carry out their regulatory functions.

本表格所提供之所有資料與任何日後作出之修訂或補充，目的在於使貴公司之保險業務得以順利運作，而該等資料可供貴公司（包括其附屬公司、關聯公司及聯繫公司，不論它們設於何處）及任何服務供應商（不論它們設於何處）轉移及/或用以處理有關之保險或索償申請、批核此申請、管理此保單並安排分保、推廣或宣傳貴公司的產品及服務及/或防止洗黑錢及/或恐怖分子融資活動。於本表格內提供之資料將作為索取保單所列之賠償的先決條件。本人可向貴公司之總辦事處（香港九龍觀塘偉業街 223-231 號宏利人壽保險（國際）有限公司個人理財產品業務部）提出要求修改及取回本表格之個人資料。本表格之個人資料可轉移予相關機構以執行監管職能。

Date (DD / MM / YYYY) 日期 (日/月/年)

X

Signature of Patient (if Aged 18 or Above) \* 病人簽署 (如十八歲或以上) \*

\* For patient aged below 18, signature of the policyowner should be provided for the claim. 十八歲以下病人之索償申請必須由保單持有人簽署。

X

Signature of Policyowner 保單持有人簽署

The Chinese version of this claim form is for reference only. In the event of conflicts between the Chinese and the English versions, the English version shall prevail. 此索償表格之中文譯本只供參考之用，若與英文有異，一概以英文為準。

Manulife (International) Limited

Incorporated in Bermuda

宏利人壽保險(國際)有限公司

百慕達註冊成立

C13 (10/2010)

**PART II – TO BE COMPLETED BY THE ATTENDING PHYSICIAN / SURGEON AT THE CLAIMANT'S OWN EXPENSES**
**第二部份 – 由主診醫生填寫，所需費用由索償人自行承擔**

(1)	Name of Patient 病人姓名： _____		
(2)	Hospitalization 住院 Name of Hospital 醫院名稱： _____ Date of Admission 入院日期： _____ Date of Discharge 出院日期： _____		
(3)	Surgical Procedure 手術 Date of Operation 手術日期： _____ Name of Procedure 手術名稱： _____ Nature 性質： _____		
(4)	Chief symptoms, complaints and etiology of the patient relating to this hospitalization/ surgery 是次住院 / 手術的主要徵狀、申訴及病因： _____		
(5)	Diagnosis of Conditions 診斷： _____		
(6)	Brief Discharge Summary: (including treatments and after treatments, investigation procedures, results, any complications and follow up plan.) 出院摘要：(治療及以後治療計劃，包括診查辦法、結果、併發症及跟進計劃)		
(7)	Date of the accident occurred or symptom first appeared 首次出現病徵日期或意外發生日期： _____		
(8)	Date of first consultation for this condition or related illness 病人就此病況或有關疾病之首次求診日期： _____		
(9)	To the best of your knowledge, has the patient ever had the same or similar conditions or symptoms relating thereto? 據閣下所知，病人以前曾否患有同類病況？ <input type="checkbox"/> NO 沒有 <input type="checkbox"/> YES 有 (Please state dates and describe 請說明日期及當時情況) _____ _____		
(10)	Is the patient referred by another doctor? 病人是否經其他醫生轉介？ <input type="checkbox"/> NO 否 <input type="checkbox"/> YES 是 (Please provide name, address and contact no. of the referral doctor 請提供轉介醫生的姓名、地址及聯絡電話) _____ _____		
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;">           Name of Attending Physician/ Specialist (with qualifications)            主診 / 專科醫生姓名 (資歷)   <b>X</b>            Signature of Attending Physician/ Specialist (with stamp)            主診 / 專科醫生簽署 (連印章)         </td> <td style="width: 50%; vertical-align: top;">           Address 地址             Contact No. 聯絡電話             Date (DD / MM / YYYY) 日期 (日/月/年)         </td> </tr> </table>		Name of Attending Physician/ Specialist (with qualifications) 主診 / 專科醫生姓名 (資歷)  <b>X</b> Signature of Attending Physician/ Specialist (with stamp) 主診 / 專科醫生簽署 (連印章)	Address 地址  Contact No. 聯絡電話  Date (DD / MM / YYYY) 日期 (日/月/年)
Name of Attending Physician/ Specialist (with qualifications) 主診 / 專科醫生姓名 (資歷)  <b>X</b> Signature of Attending Physician/ Specialist (with stamp) 主診 / 專科醫生簽署 (連印章)	Address 地址  Contact No. 聯絡電話  Date (DD / MM / YYYY) 日期 (日/月/年)		

This claim form is endorsed by the Hong Kong Medical Association and the Medical Insurance Association of the Hong Kong Federation of Insurers.  
 本賠償表獲香港醫學會及香港保險業聯會轄下之醫療保險協會認可。



# Sompo Japan Insurance (Hong Kong) Co., Ltd.



## Sompo Japan Insurance (Hong Kong) Co., Ltd.

19/F., Lincoln House, Taikoo Place, 979 King's Road, Island East, Hong Kong.  
Telephone: (852) 2831 9980 Fax: (852) 2573 2072 Website: www.sompojapan.com.hk

### MEDICAL INSURANCE – HOSPITALIZATION & SURGICAL CLAIM FORM

#### 醫療保險 – 住院及手術賠償表

This form is applicable to both inpatient and outpatient surgical claim

本表適用於住院及門診手術賠償

#### PART I – TO BE COMPLETED BY THE PATIENT

甲部-由病人填寫

Please "✓" for return of original receipts 如欲退回正本收據, 請填 "✓" ○

Name of Policyholder 保單持有人名稱 :	
Name of Employee 僱員姓名 :	Policy No. 保單號碼 :
Payee Name 收款人名稱 :	Claim Amt. 索賠額 : Hospital Cash Return Benefit 住院現金保障: Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/>
Name of Patient 病人姓名 :	I.D. Card No 身份證號碼 : - ( )
Occupation 職業 :	Date of Birth 出生日期 : Sex 性別 : <input type="checkbox"/> M 男 <input type="checkbox"/> F 女
Relationship with Employee 病人與僱員關係 : <input type="checkbox"/> Self 本人 <input type="checkbox"/> Spouse 配偶 <input type="checkbox"/> Child 子女	
(1) Have you had any treatment prior and related to this treatment? Yes 是 <input type="checkbox"/> Details as follows 資料如下 閣下是否曾經因同一病況接受治療? No 否 <input type="checkbox"/> Doctor's Name 醫生姓名 : _____ Address 地址 : _____ Date(s) 日期 : _____	
(2) Are you making any other insurance claim as a result of this hospitalization/surgery? Yes 是 <input type="checkbox"/> Details as follows 資料如下 有關此次住院/手術, 閣下是否有申請其他保險賠償? No 否 <input type="checkbox"/> Name of Insurance Company 保險公司名稱 : _____ Policy No. 保單號碼 : _____ Amount Recovered 索償額 : _____	
(3) Was the hospitalization/surgery a result of an accident? Yes 是 <input type="checkbox"/> Details as follows 資料如下 此次住院/手術是否由一宗意外引致? No 否 <input type="checkbox"/> Date 日期 : _____ Time 時間 : _____ Place 地點 : _____ Brief Description 經過 : _____	
<p><b>PERSONAL INFORMATION COLLECTION STATEMENT</b></p> <p>The information you provide to us is collected to enable us to carry on insurance business and may be used for the purpose of:</p> <ul style="list-style-type: none"> <li>any insurance or financial related product or service or any alterations, variations, cancellation or renewal of such product or service;</li> <li>any claim or investigation or analysis of such claim;</li> <li>exercising any right of subrogation; and</li> </ul> <p>may be transferred to:</p> <ul style="list-style-type: none"> <li>any related company or any other company carrying on insurance or reinsurance related business or an intermediary or a claims or investigation or other service provider providing services relevant to insurance business for any of the above or related purposes;</li> <li>any association, federation or similar organization of insurance companies "Federation" that exists or is formed from time to time for any of the above or related purposes or to enable the "Federation" to carry out its regulatory functions or such other functions that may be assigned to the "Federation" from time to time and are reasonably required in the interest of the insurance industry or any member(s) of the "Federation"; and</li> <li>any members of the "Federation" by the "Federation" for any of the above or related purposes.</li> </ul> <p>Moreover, Sompo Japan Insurance (Hong Kong) Co., Ltd. is hereby authorized to obtain access to and/or to verify any of your data with the information collected by the "Federation" from the insurance industry.</p> <p>You have the right to obtain access to and to request correction of any personal information concerning yourself held by Sompo Japan Insurance (Hong Kong) Co., Ltd. Requests for such access can be made to Sompo Japan Insurance (Hong Kong) Co., Ltd. on Telephone No. 2831-9980 or Fax No. 2573-2072.</p> <p><b>收集個人資料聲明</b></p> <p>閣下提供的資料, 為本公司提供保險業務所需, 並可能使用於下列目的:</p> <ul style="list-style-type: none"> <li>任何與保險或財務有關的產品或服務, 或該等產品或服務的任何更改、變更、取消或續期;</li> <li>任何索償或就索償的調查或分析;</li> <li>行使任何代位權; 及</li> </ul> <p>可能轉移予:</p> <ul style="list-style-type: none"> <li>任何有關的公司, 或任何其他從事與保險或可保業務有關的公司, 或與保險業務有關的中介人, 或索償或調查或其他服務提供者, 以達到任何上述或有關目的;</li> <li>現時或可能成立的任何保險公司協會或聯會或類聯會, 以達到任何上述或有關目的, 或以協助該聯會執行其監管職能, 或其他基於保險業或任何聯會會員的利益而不時在合理要求下賦予聯會的職能; 及</li> <li>或透過聯會轉予任何聯會的會員, 以達到任何上述或有關目的。</li> </ul> <p>此外, 在此授權下 Sompo Japan Insurance (Hong Kong) Co., Ltd. 並(聯會)從保險業內收集的資料中查閱及/或提取閣下任何資料。</p> <p>閣下有權查閱及要求更正由 Sompo Japan Insurance (Hong Kong) Co., Ltd. 持有有關閣下的個人資料, 如有需要, 可向 Sompo Japan Insurance (Hong Kong) Co., Ltd. 提出。(電話: 2831-9980 或傳真: 2573-2072)</p>	
<p><b>DECLARATION &amp; AUTHORIZATION 聲明及授權書</b></p> <p>I hereby declare that the above information given is true and correct.</p> <p>I further authorize any hospital, physician, insurance company or organization that have records or knowledge of me or my health, to furnish to Sompo Japan Insurance (Hong Kong) Co., Ltd. or its authorized representative, any and all information with respect to any illness or injury, medical history, consultation prescriptions or treatment and copies of all hospital or medical records. A Photostat copy of this authorization shall be considered as effective and valid as the original.</p> <p>本人茲授權持有本人健康或任何資料之醫院、醫生、保險公司或機構, 可以將部份或全部有關本人患之病歷、診斷報告及藥方等資料給予 Sompo Japan Insurance (Hong Kong) Co., Ltd. 或其代理人。此授權書之影印本與正本具有同等效力。</p>	

Date 日期

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Signature of Patient 病人簽名

**PART II – TO BE COMPLETED BY THE ATTENDING PHYSICIAN/SURGEON AT THE CLAIMANT'S OWN EXPENSES**  
**乙部-由主診醫生填寫，所需費用由索償人自行承擔**

(1) Name of Patient 病人姓名： _____	
(2) Hospitalization 住院 Name of Hospital 醫院名稱： _____ Date of Admission 入院日期： _____ Date of Discharge 出院日期： _____	
(3) Surgical Procedure 手術 Date of Operation 手術日期： _____ Name of the Procedure 手術名稱： _____ Nature 性質： _____	
(4) Chief complaints of the patient relating to the hospitalization/surgery 此次住院/手術主要病因： _____	
(5) Diagnosis of conditions 診斷： _____	
(6) Brief discharge summary: (including treatments, investigation procedure, results and/or any complications and follow up plan.) 出院摘要：(治療及以後治療計劃，包括診查辦法、結果、併發症及跟進計劃)	
(7) Is condition due to Congenital Anomalies? 是否先天性疾病? Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/>	
(8) Is condition due to Pregnancy? 此病是否由懷孕引致? Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/>	
(9) Date of accident occurred or symptom first appeared 首次出現病徵日期或意外發生日期 _____ DD _____ MM _____ YYYY	
(10) Date of first consultation for this condition or related illness 病人首次求診日期 _____ DD _____ MM _____ YYYY	
(11) To the best of your knowledge, has the patient ever had the same or similar conditions or symptoms relating thereto? Yes 是 <input type="checkbox"/> , Details as follows 資料如下 據閣下所知，病人以前曾否患有同類病況? No 否 <input type="checkbox"/> Please state dates and details _____ 請說明何時及當時情況 _____	
(12) Was the patient referred by another doctor? Yes 是 <input type="checkbox"/> , Details as follows 資料如下 病人是否經其他醫生轉介? No 否 <input type="checkbox"/> Name and address of the referral doctor _____ 轉介醫生的姓名及地址 _____	
Name of Attending Physician / Specialist (with qualifications) 主診/專科醫生的姓名 (資歷)	Address 地址  Telephone 電話
Signature of Attending Physician / Specialist 主診/專科醫生簽名	Date 日期

## VITA

Graduate School  
Southern Illinois University

Steve Sitt

stevesitt@siu.edu

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The Chinese University of Hong Kong, Hong Kong  
Bachelor of Arts, Philosophy, May 1988

The Johns Hopkins Hospital, Baltimore, Maryland  
Certificate, Nuclear Medicine Technology, 1993

Thesis Title:

Positron Emission Tomography Utilization Development in Hong Kong

Major Professor: Barbara Hagler, Ph.D.